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BRITISH MEDICAL JOURNAL

JOURNAL OF THE BRITISH MEDICAL ASSOCIATION

SATURDAY DECEMBER 18 1948

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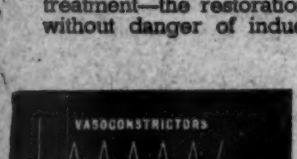

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY DECEMBER 18 1948

THE INCIDENCE AND TREATMENT OF INFECTIVE EAR DISEASE IN FACTORY EMPLOYEES*

BY

COLIN M. JOHNSTON, M.S.†

A serious cause of wastage of man-power in the late war was due to disease of the ear. Thus during February and March, 1943, at four large military hospitals in the United Kingdom 11,956 out-patients were seen, of whom no fewer than 1,517 (12.7%) were suffering from diseases of the ear, nose, or throat. Of these 1,517 cases approximately one-half (6%) were due to all forms of disease of the ear and one-quarter (3%) to chronic suppurative otitis media. Thus it was shown that chronic ear disease caused a serious loss of fighting man-power in time of emergency. There was good reason for believing that this serious state of affairs had its basis in the high rate of ear disease prevalent in the civilian population, and this was strikingly confirmed by the results of a study of the records of the Ministry of Labour and National Service Boards, which revealed that just over 2% of the recruits examined were rejected on account of chronic ear disease, while diseases of the ear were responsible for 10% of the total number rejected from all causes.‡

Now chronic ear diseases, in particular C.S.O.M., are well known as potent causes of inefficiency, invalidism, or early death. Occupational groups such as food manufacturers, shops, the General Post Office, and life assurance companies recognize their importance and may penalize the sufferer by refusing him employment or insurance as the case may be. The high incidence of the disease, emphasized by wartime experience, therefore demanded consideration in the planning of the health services of the country, and the present study of the incidence, prevention, and treatment of chronic ear disease in a sample of the civilian population owes its inception and design to the committee of the Medical Research Council appointed to advise upon the medical and surgical treatment of deafness.

Much information about ear disease in children had already been obtained from the school medical services. The methods and results of treatment of the disease in hospital practice were well known among otologists, but little knowledge of the incidence in the adult population was available, and there was general dissatisfaction about the results of treatment. The work carried out during the war by otologists in the armed Forces and the civilian emergency medical service demonstrated on a large scale the validity of previous observations. These showed that good results were obtainable with conservative treatment. Thus by regular daily treatment Banham§ was able to obtain a dry ear in 82.5% of 200 cases of chronic suppurative otitis media occurring in R.A.F. personnel. This result strongly suggested that the high incidence of chronic suppurative otitis media in the civilian population is mainly due to neglect—a neglect which arises in large part from the patient's inability, for economic reasons, to attend regularly for treatment. Attendance at the panel doctor's surgery means that patients often have to leave the office or factory before completion of the day's work and then wait for several hours before being examined. Owing to pressure of work the practitioner is unable to do more than prescribe ear drops, which usually fail to cure the condition. Attendance at hospital for specialist advice and treatment also entails absence from work, which may cause very considerable loss of wages. Even when facilities are available at the hospital for treatment after the patient's working hours—and this is exceptional—there will be a considerable interference with leisure. The patient may be prepared to sacrifice wages or leisure for short periods or for painful and disabling conditions, but the slight symptoms of most cases of chronic ear disease seldom impel him to endure the discomforts and losses resulting from a course of treatment which may extend over several months.

The only reasonable alternative would appear to be treatment given at or near the place of work. An ear-treatment clinic organized at the factory or office would obviate the time spent in travelling to the hospital and would enable the sufferer to obtain regular treatment during his working hours. An industrial area containing large factories would provide the necessary clinical material, and it was accordingly decided to investigate the possibilities of treating chronic suppurative otitis media in factory clinics situated in such an area.

After negotiations with the Industrial Health Research Board and a group of industrial medical officers I was appointed as a full-time otologist to carry out an investigation in factory clinics in the Birmingham area.

The investigation falls into two sections. First, a survey was made to determine the incidence of ear disease in the population of the factories concerned. Secondly, an attempt was made by means of a field experiment to determine the value of the factory clinics in treating ear diseases in the associated population. The work done under both of these headings forms the subject of the present report.

Introductory Note on Factory Medical Services

Before the late war many factories employed a trained nurse and some a part-time or whole-time medical officer. During the war the large influx of unskilled labour and the longer working hours made an extension of the factory medical service essential, and many of the larger factories

*An abridged version of the report presented by the Medical Committee to Advise on Medical and Surgical Problems of Diseases of the Ear, of the Medical Research Council.

†In receipt of a whole-time grant from the Medical Research Council.

‡The above data were obtained from a report on "Chronic Suppurative Otitis Media in the Army" presented by Brigadier M. L. Formby to the Medical Research Council (M.S.D.17).

§Banham, T. M., *J. Laryng.*, 1944, **59**, 117.

developed a well-equipped medical organization directed by one or more full-time medical officers and staffed by State-registered nurses. Their value in safeguarding the health of employees has been proved, and the retention of industrial health services in the future is probably assured. In a few factory clinics the conditions equal those of a hospital casualty department and a diagnostic *x*-ray plant is available. Ophthalmic, dental, chiropody, and physiotherapy treatments are available, and are conducted by visiting specialists or by trained staff. Treatment and advice by the specialist are by appointment, during working hours. Workers appreciate this, and managements are satisfied that the results obtained warrant both the small capital expenditure entailed and the small loss of the worker's productive time.

Where the factory covers a large area the medical organization usually includes a central medical department with one or more dressing stations, in order that the employee shall not have to walk too great a distance from his place of work. This is of value in facilitating the early treatment of minor cuts and preventing sepsis, and where the condition requires daily or more frequent attention less time will be lost from productive work.

In the present conditions of the five-day working week factories where continuous processes are not employed close at week-ends and during public and works holidays. The medical department will also be closed during those times and continuity of medical treatment interrupted. In factories where night work is carried out the dressing station may be manned by a male nursing orderly who, though well experienced, has had only first-aid training.

Thus, apart from the drawbacks already mentioned, the factory medical services have all necessary facilities for the treatment of minor complaints, and many of the difficulties expressed by sufferers in obtaining treatment elsewhere are thereby overcome.

It should be stressed that the primary function of the factory medical service is to maintain the working efficiency of the employee and to prevent accidents and ill-health occurring at the place of work. It is not held that infective ear disease is an industrial hazard, but it may be detrimental to effective working capacity. Alleviation will therefore come within the purview of the industrial health service, but from the point of view of the factory management the loss of production caused by the time spent on treatment must be balanced by an increased efficiency for work. This should be demonstrated by a decrease in absence due to sickness

SECTION I

Survey to Ascertain the Incidence of Ear Disease in the Factory Population

In order to gain an estimate of the incidence of chronic infective disease of the ear in the factory population a survey has been conducted of a random sample of the workers in four factories in Birmingham.

Experience gained during the survey confirmed the opinion previously held, that statements by individuals regarding not only the degree but even the presence or absence of ear symptoms were inaccurate. Thus several individuals, after stating that their ears were healthy, expressed surprise on being shown pus removed from their ear. A person's assessment of the acuity of his hearing varied from those professing some deafness, when the hearing was found to be normal to rough testing, to the others who, severely deaf, will only with reluctance admit even a slight loss of hearing. It was therefore essential for the purposes of accuracy to examine the external auditory meatus with an aural speculum and adequate lighting.

Care was taken to explain the objects of the survey before permission was asked to examine the ears. Out of 1,902 individuals examined only 14 refused to co-operate, and there was reason to suspect that a proportion of these suffered from ear disease and for a variety of reasons did not wish to divulge the fact. Owing to the limitations imposed on the length of the examination due to the necessity for avoiding interference with factory production, cerumen could not in all cases be removed, nor could an attempt be made to assess the cause or degree of any deafness. The presence of cerumen was noted if in an amount sufficient to obscure a view of the ear-drum.

Results

The survey was conducted over a period of 13 months from August, 1946, to September, 1947. Table I shows the incidence of ear disease in the total sample examined. It may be noted that the numbers refer to the individuals affected and not to the number of ears.

TABLE I.—*Incidence of Ear Disease in the Total Sample*

	No.	Percentage Incidence
Individuals examined:	1,902	100%
1. Cerumen:		
Unilateral	239 } 475	25%
Bilateral	236 }	
2. Otitis externa:		
Membrana tympani intact	49	2·6%
3. Scarring without perforation of the membrana tympani:		
Unilateral	153 } 220	11·6%
Bilateral	67 }	
4. Dry perforations of the membrana tympani:		
Unilateral	28 } 31	1·6%
Bilateral	3 }	
5. Active suppurative otitis media:		
Unilateral	48 } 62	3·3%
Bilateral	14 }	
6. Healed cortical mastoidectomy:		
Middle ear dry: Unilateral	16 } 19	1%
" " Bilateral	1 }	
Middle ear infected: Unilateral	2	
7. Healed radical mastoidectomy: Unilateral	7	0.4%
8. Otitis media, active and healed. (Sections 3, 4, 5, 6, and 7)	339	17·8%
9. Bilateral otitis media. Active in one ear or both	39	2%
Bilateral otitis media. Healed in both ears	88	4·6%
10. Healed mastoid operations. (Sections 6 and 7)	26	1·4%

Table II shows in a summarized form the incidence of ear disease in different age and sex groups.

TABLE II.—*Incidence of Age and Sex Groups in Sample*

	Male	Female	Total	Percentage
Under 20	249	69	318	16·7%
20 to 29	369	140	509	26·5%
30 to 39	364	45	409	21·5%
40 to 49	292	37	329	17·4%
50 to 59	211	17	228	12·1%
60 and over	104	5	109	5·7%
Total	1,589	313	1,902	100%

SECTION II

Organization of Factory Ear-treatment Service

The organization of the factory medical department, designed to suit the needs of the group it serves, differs in many ways from that of a hospital. An ear-treatment service must therefore adapt itself to the altered conditions, and, although in this investigation the treatment has been similar to that of the hospital, some modifications have had to be made in the light of experience. As these modifications have had an effect on the results of treatment they should be considered when comparing results with those derived from hospital practice. A permanent basis for an ear-treatment service would doubtless diminish, but not abolish, these differences.

Facilities available in factory medical departments have been found adequate for the treatment of chronic ear disease

with the exception of certain deficiencies. Intermittency of treatment, the lack of certain diagnostic aids, and to some extent lack of the greatest possible skill in treatment by the nursing staff have militated against full efficiency. Discussion on these latter points will be found in the section on the treatment methods employed for chronic suppurative otitis media.

Results of Factory Ear-treatment Service

The results reported in this paper have been derived from work carried out in seven large factories situated in the city of Birmingham, employing in all 51,900 employees. A considerable proportion of these workers were not natives of Birmingham but had spent their childhood elsewhere in Great Britain or in Eire. All these factories have well-equipped and efficient medical departments with the facilities already outlined.

Table III shows the clinical conditions encountered. An analysis of these cases, and the results of their treatment, will now be considered.

TABLE III—*Clinical Conditions Encountered*

Condition	*No. of Patients*
Cerumen	255
Otitis externa	389
Other conditions of pinna and meatus	24
Acute otitis media	26
Chronic suppurative otitis media	274
Healed otitis media	249
Healed cortical mastoidectomy	26
Healed radical mastoidectomy	44
Eustachian obstruction	65
Clinical otosclerosis	26
Conductive and mixed deafness of unknown aetiology	20
Perceptive deafness	117
Conditions of ear not already classified	32
Conditions of the nose and throat	78
Suspected disease of ear, nose, or throat—nothing abnormal found	62
Other conditions of head and neck	24

Cerumen

These patients were referred to the otologist because of pain or deafness, and removal of the cerumen revealed no other abnormality of the ear. Cases where another ear condition was found have not been included under this heading.

Most cases of cerumen coming for treatment at the factory surgery are referred by the nursing staff to the panel doctor in charge of the case. Some, for one reason or another, prefer to obtain their treatment in the factory surgery and are dealt with by the nursing staff. A few, because of pain or difficulty of removal of the cerumen, were referred to the otologist. 255 patients were seen. Six examples of keratosis obturans were observed. The meatus was restored to normal in each case as a result of treatment.

Otitis Externa

Furunculosis.—The majority of the cases were solitary and not followed by a subsequent attack. The condition was observed more commonly in young adults, usually female, or in individuals who had a slight abnormality of the meatus. Thus in the opposite meatus the cerumen was scanty and stiffer in consistency than the normal, or there was an absence of cerumen with a few dry epithelial scales.

Treatment.—Any epithelial debris and pus lying in the meatus were removed by the otologist as a preliminary measure. When available, diathermy (inductotherapy) was given and relieved the pain in under 48 hours. Alternatively ichthyol preparations were applied on a gauze wick until the pain subsided. In an attempt to prevent recurrences, drops of ung. hyd. nit. dil. in liquid paraffin, 1 in 8, were instilled daily for a week or longer.

In no case observed was it necessary to employ vaccine therapy or such preparations as colloidal manganese.

Acute Otitis Externa

This condition was more often seen as an exacerbation of a chronic condition, but it also occurred *de novo*. The latter condition only will be discussed in this section.

In some cases a history of previous attacks was present. The initial attack was occasionally caused by furunculosis or occurred during service in the armed Forces. The entrance of infected water into the meatus, as in sea or fresh-water bathing or washing, appeared to precipitate an attack in some cases, while the constitutional effect of acute coryza, dietary indiscretion, or dental extraction in the causation was observed. In others an active chronic suppurative otitis media was present. Otitis externa occurring during the course of treatment of otitis media was a troublesome complication and in the majority of cases followed the use of insufflations containing sulphanilamide. It appeared to be a true sensitization, as the previous continual use of such a preparation in the ear was without ill effect. Less often otitis externa followed the use of spirit drops or iodine and boric powder insufflations.

In the most severe cases the meatal lesion spread over the lateral surface of the pinna and involved the surrounding skin of the cheek and neck, forming an acute weeping eczema.

Treatment.—Care was taken at the first and subsequent examinations to remove scrupulously all pus and epithelial debris from the meatus, paying particular attention to the anterior and inferior parts of the junction between the meatal wall and the tympanic membrane. Afterwards the ear was mopped out daily with dry cotton-wool-tipped probes by the nursing staff.

Of the medicaments used, 1% aqueous gentian violet solution, 50% spirit containing ½% gentian violet, aluminium acetate solution 4%, and calamine lotion were found to be of the most use. Gentian violet very rarely caused exacerbation and appeared to be more effective when combined with spirit as above, but in some cases resolution was slow. Aluminium acetate applied on ½-in. (1.25-cm.) -wide ribbon gauze packs gave excellent results in some cases, but occasionally failed or, worse, caused severe exacerbation. For lesions of the pinna, gentian violet, while giving good results, was disfiguring to the patient. Calamine lotion could be satisfactorily substituted in most cases, but results were more rapid with a mixture of equal parts of the aqueous gentian violet solution and calamine lotion.

Penicillin ointment (500 units per gramme) applied on a wick of ribbon gauze gave excellent results in some cases, but in many cases it caused an exacerbation, often severe. It was not determined whether this was due to sensitivity to penicillin or the ointment base, insufficient concentration of penicillin, or the growth of penicillin-resistant organisms.

When the condition had resolved and treatment was discontinued the patient was requested to return one week later to confirm the cure.

Chronic Otitis Externa

This condition was diagnosed when irritation or meatal discharge had been present for at least a month with no evidence of spontaneous cure. Many cases gave a history of acute attacks at intervals, and in some the cause of these attacks appeared to be the same as those already mentioned under the aetiology of acute otitis externa. The occurrence of intercurrent attacks of furunculosis has already been mentioned.

The severe cases varied from those of comparatively recent origin, where the meatus was filled with offensive epithelial debris and cerumen, to the old-standing case with gross oedema and sub-epithelial thickening of the meatal walls and pinna. The mild cases showed an absence of cerumen, or pale offensive cerumen was present. If the meatus was moist the pus was offensive and flaky, and if dry the meatal walls were covered with dry scales.

Self-treatment with peroxide of hydrogen, some glycerin preparations, or unsuitable proprietary applications was found to cause an acute otitis or exacerbate one already present. Some patients stated that the condition was made worse by washing with soap and water. Patients working on grinding or cutting machines where suds (composition: soda ash, 28 lb. (12.7 kg.); soft soap, 43 lb. (19.5 kg.); water, 100 gallons (455 litres)) were employed as a lubricant and cooling agent would scratch an irritating ear with the soiled hand, and some resistant cases involving the pinna were cured when a scarf was worn round the head during work. Associated seborrhoeic dermatitis of the scalp was infrequent.

Treatment.—As in the acute form of the disease, scrupulous removal of the pus and epithelial debris was practised. Occasionally, in addition, the patient was instructed how to cleanse

his meatus with dry cotton-wool-tipped probes when daily treatment could not be given by the factory nursing staff. In the isolated case this appeared to hasten a cure.

The choice of medicament lay between those held in a watery base and those in an oily or greasy base. As a rule, dry lesions of the meatus reacted best to oily preparations such as pigmentum hyd. nit., ung. hydrarg. ammon. dil., Lassar's paste, or zinc and castor oil cream. In the atrophic type of ear the use of a preparation such as pig. hyd. nit. was prolonged, and the applications continued at increasing intervals. Moist lesions were treated with gentian violet or aluminium acetate solution.

Otitis Externa with Granulations

Sessile granulation tissue arising from the meatal walls or external surface of the ear-drum occurred with the acute, subacute, and chronic forms of otitis externa. When the granulation tissue arose from the ear-drum the differential diagnosis from otitis media was made by the absence or slight degree of deafness, the appearance of the unaffected portions of the ear-drum, and the absence of fresh pus from the affected area when negative pressure was applied with a Siegle's speculum. The granulation tissue could arise from any part of the tympanic membrane, but was more often seen on the membrana tensa. Multiple sites of origin were more common than solitary sites. Healing was slow, but when complete a scar did not result. Several patients were seen again with a recurrent attack and the granulations then usually sprang from the areas previously affected. Concomitant herpes labialis or acute coryza did not occur in these cases.

Treatment.—The meatus was cleansed by frequent or daily dry mopping, and 50% surgical spirit was instilled. The granulations were touched with trichloracetic acid solution at weekly intervals.

Results of Treatment of Otitis Externa

Table IV shows the number of patients seen, the number and percentage of recurrences, and the average duration of

TABLE IV.—*Otitis Externa*

	No. of Patients Seen	No. of Recurrences	Average Duration of Treatment in Weeks
Furunculosis	48	10 (20%)	1·2
Acute otitis externa	110	10 (9%)	1·8
Chronic ,, ,, ...	218	45 (20%)	2·8
Otitis externa with granulations	13	1 (7%)	3·5

treatment. It will be seen that furunculosis and chronic otitis externa have a high recurrence rate (20%). In 54 patients the condition was so slight that no treatment was considered necessary, and 71 other patients did not complete the treatment. The remainder were cured.

It must be stressed that no deductions can be drawn about the efficacy or the duration of treatment. This part of the investigation was not planned to determine the comparative efficiency of various forms of treatment; descriptions of the methods used have been mentioned only to indicate the range of treatment. The disease has been found to cause more pain, with resulting loss of working efficiency, than chronic suppurative otitis media, and considerable care and treatment have been necessary for its alleviation.

Other Conditions of Pinna and Meatus

Otitis Externa Bullosa and Haemorrhagica.—These conditions were seen in 11 patients, in all of whom the condition was unilateral. In 6 of these cases the vesicles were filled with blood. Concomitant otitis media was observed in 1 case.

Osteoma of the External Meatus.—The condition was seen in 6 patients, and in no case was the meatus obstructed or the hearing affected.

Developmental abnormalities.—One case of complete atresia of the external meatus and maldevelopment of the pinna associated with gross perceptive deafness in that ear was seen. The function of the other ear was apparently normal. In another case an accessory auricle was present, consisting of an irregular fleshy projection arising from the cheek just in front of the left tragus. The pinna, external meatus, and tympanic membrane were normal, and there was a mild presbyacusia, equal in both ears. In neither case was there a familial association. Five examples of developmental stenosis of the meatus were encountered.

Acute Otitis Media

This term is limited to those cases where the history and the physical signs provided no evidence of a previous attack of otitis media. Those cases in which previous attacks had occurred will be described under recurrent chronic suppurative otitis media.

Non-suppurative Acute Otitis Media.—Pain, deafness, and an acute upper respiratory infection were present in all cases. The appearances varied from localized dilatation and redness to generalized redness and bulging of the tympanic membrane.

Treatment.—Where the inflammatory changes in the tympanic membrane were slight and localized, spirit ear-drops were instilled daily to sterilize the meatus, and steam inhalations were given twice daily to combat the nasopharyngeal infection. The other cases were referred to the patient's medical practitioner for treatment by chemotherapy.

Results.—Sixteen cases were seen, all unilateral. Five patients were not seen again. The remaining 11 ears resolved, and in all except one case the hearing was restored to its previous level.

Suppurative Acute Otitis Media.—In all the cases perforation of the tympanic membrane had already occurred. An acute upper respiratory infection was held to be the cause in 5 cases; the remainder were due to local trauma from blows on the ear or the insertion by the patient of such objects as match-sticks or "Kirby" hair grips to allay irritation of the external meatus.

Treatment.—Pus was removed daily by syringing, sulphanilamide powder with boric acid was insufflated, and a cotton-wool plug was inserted in the outer meatus. Any nasopharyngeal infection was treated with steam inhalations.

Results.—Ten cases were seen, all unilateral. All resolved with treatment and the hearing was restored to its previous level.

Chronic Suppurative Otitis Media

Definition of Terms Employed.—Consideration of the history allowed of the division of the cases into two groups according to the continuity of the otorrhoea. If this has been without break since the onset of the disease the condition may be termed "continual," whereas if the otorrhoea ceases and the middle ear becomes dry, only to relapse at a later date, the condition may be termed "recurrent." Accurate placing of the cases into either group was not always possible in the absence of previous clinical examination. If the discharge temporarily diminishes so that evaporation will suffice to prevent it emerging from the entrance of the external meatus the patient may conclude that the ear is dry when such is not the case. For the purposes of classification used in this paper those cases of middle-ear disease where the otorrhoea ceases for periods of less than one month were placed in the "continual" group, and those with a dry ear for periods of more than one month were placed in the "recurrent" group. The classification is based on the supposition that an ear subject to recurrent attacks of infection will be more likely to become dry with treatment than the ear from which the discharge has been continual. This grouping has been found of value as a simple aid for the determination of the severity of the disease and the reaction to treatment. It is realized that the classification is not a completely accurate diagnostic criterion. Certain cases placed in the "recurrent" group will, for the reason stated above, belong to the "continual" group, though the opposite is unlikely to occur.

The results of treatment have been classified under the heads of "cure," "quiescence," and "failure."

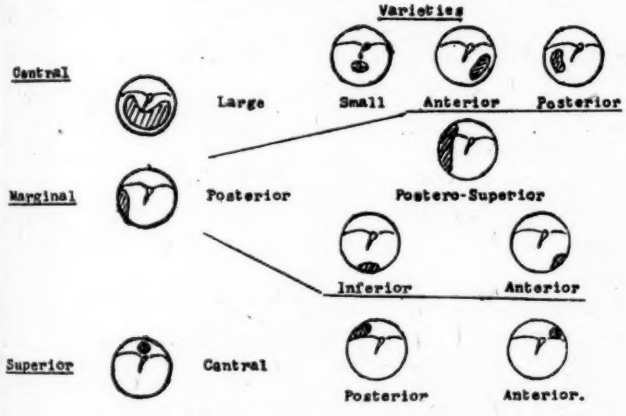
The criteria held to be necessary for a case to be regarded as cured vary according to the previous history. In the "recurrent" case with previous attacks of short duration the "present" attack was regarded as cured when observation after a minimum period of one week without treatment disclosed the middle ear to be dry on inspection and by mopping with a fine wool-tipped probe through the perforation. In the other type of "recurrent" case, where previous attacks had been few and possibly the "present" attack had been of long duration, the same criteria were used if during treatment there

had been a steady decline in the amount and improvement in the nature of the discharge. "Continual" cases were regarded as cured when the middle ear was dry for a minimum period of two weeks without treatment. In some cases it was possible to examine the ear at intervals up to a year after cure, but, while it is desirable to do this in all cases, circumstances outside the control of this investigation have made this impossible.

It is considered that the inclusion of certain cases under the heading of "quiescent" is justified from the administrative aspects of an ear-treatment service. Cases have been placed in this group when, despite prolonged and adequate treatment and subsequent weekly or monthly observation, the middle ear only remained moist but pus did not flow through the perforation. The less severe cases merely required inspection and toilet at monthly or longer intervals. The more severe cases required frequent inspection and toilet. Without this regular treatment the infection may become more severe, with the production of pus appearing at the meatus in the form of either an acute exacerbation or a gradual recrudescence.

Treatment was regarded as failing if, after an adequate course of at least four to six months, pus was found in the external meatus within 24 or 48 hours after the last treatment. Except in 16 cases where no lessening of the discharge occurred, treatment resulted in diminution of offensive odour and the amount of the discharge; this appeared to be the reason for the persistence with which the patients attended over long periods. In this group were many cases in which the hearing was such that an increase of the deafness would be expected if surgical procedures were resorted to.

For the purposes of description the positions of a perforation will be described under certain groups. The diagrams show the relation to the principal landmarks of the ear-drum.



Alterations in the size and shape of the perforation have been observed during the course of treatment but are without prognostic significance. Migration of the perforation has been seen in a few cases, but not to a degree sufficient to alter the original designation.

Double perforations fall into two varieties. In one, both perforations are in the membrana tensa, usually in front of and behind the handle of the malleus, and are classified as "central." In the other variety one perforation is in the membrana tensa, the other in the membrana flaccida. In all the examples seen of the latter variety the superior perforation has shown the greater activity and the case has been classified as "superior."

Aetiology.—Age of onset. Table V shows the age at the onset of the first attack of otitis media where a reliable history could be obtained. It will be noticed that 44.4% of the patients

TABLE V.—*Chronic Suppurative Otitis Media. Age at Onset of First Attack*

Age:	0–5	6–10	11–20	21–30	31–40	41–50	51–60	Over 60	Total
No. of patients ..	78	38	61	49	23	9	2	1	261
Percentage distrib. ..	29·9	14·5	23·3	18·7	8·8	3·4	0·7	0·3	100

experienced their first attack in the first decade of life. Thereafter there is a steady decline with each decade. It is probable that some patients, having no recollection of otitis media in childhood, gave a later date and have caused the incidence in later decades to be too high.

Evidence has been found in the cases treated that the removal of the factors leading to chronicity is often feasible and will result in the cessation of the otorrhoea. That chronicity may be due to one factor alone has been shown by individual cases in which the otorrhoea had been present for over six months. Thus prevention of stagnation of the discharge due to inefficient treatment allowing of its accumulation resulted in a dry ear in 77% of the successfully treated ears. The removal of cholesteatoma present in the middle ear led to a dry ear in 1.7% of the successfully treated ears, and of granulation tissue or polypi in 2.25% of those successfully treated. Two or more factors were commonly present in the one case, such as stagnation and granulation tissue, and it was not until both causes had been removed that a cure resulted. In certain cases circumstances led to the removal of one factor before the other, and the result justified the above conclusion. It is accepted that necrosis of bone in the middle-ear cleft and infection of the mastoid antrum and air cells are factors causing chronicity, but the facilities at the disposal of this investigation did not enable corroboration of this to be obtained.

Chronic suppuration of the nasal sinuses was held to be the cause of chronicity in 8, chronic infection of the tonsils in 19, and chronic infection of the adenoids in 6 patients.

Ascending infection from the Eustachian tube was common, and an acute respiratory infection was a frequent cause in many cases of recurrent attacks of otitis media. The middle ear remained infected until the nasal and pharyngeal infection had subsided. It was noted that when the middle ear was already infected the supervention of an acute respiratory infection caused an increase in the amount of the otorrhoea in all cases with an anterior or central perforation of the ear-drum, occasionally with a postero-central perforation, and rarely with a superior or postero-superior perforation.

Methods of Treatment Adopted for C.S.O.M.

The elimination of infection in the nose, mouth, or pharynx causing an ascending spread via the Eustachian tube was considered to be an essential part of the treatment of chronic suppurative otitis media. The method of removal of the pus from the ear has been conditioned by the nursing facilities in the factory medical departments. It is admitted that syringing may transfer bacteria from the skin of the outer meatus into the middle ear and that mopping with a dry cotton-wool-tipped probe under direct vision through an aural speculum will reduce this mode of infection. The latter form of treatment, however, requires skilled personnel to attain thorough and painless removal of the pus. The lack of previous experience of conservative ear treatment, the changes of nurses on a duty rota, and the small numbers of patients treated have prevented the attainment of this skill. As a matter of expediency, syringing has therefore been adopted in most cases. Exceptions were made in some of the cases with associated otitis externa, where it was thought that the introduction of water would exacerbate or delay the resolution of the meatal condition, and those cases where syringing even with water carefully adjusted to the body temperature caused objectionable vertigo. In these latter cases the progress of the middle-ear condition has been slower. Deficiencies in the adopted method of daily treatment have to some extent been made up by a thorough cleansing of the meatus and middle ear under direct vision by the otologist at weekly intervals.

The choice of medicament used after cleansing the middle ear has been determined by the requirements of the case and the previous experience of the otologist. No new preparations have been employed. The ones chosen have been employed because the results from their use are already known and not because it is considered that other medicaments are of less value.

Where there was profuse discharge, epithelial debris, granulation tissue, or cholesteatoma, drops of surgical spirit 50% in water were employed with the aim of effecting greater penetration of the exudate. It was considered that a dry powder would either be rapidly washed out by the discharge or remain on the surface of the debris or granulations. Where the discharge

was moderate or scanty, and particularly in those cases with a large central perforation, insufflations of powder were chosen. Equal parts of sulphanilamide powder and boric acid gave satisfactory results except in those cases, mentioned in a previous section, where a local reaction of the meatal skin occurred. In such cases a change to spirit drops or iodine and boric powder was generally sufficient to cure the meatal condition.

The frequency of treatment of the individual case was mainly determined by the amount of the discharge. Daily treatment was given when pus was present in the meatus, and was discontinued when the middle ear kept dry for at least twenty-four hours without attention. In certain cases where no offensive odour was present daily treatment was discontinued when it had been carried out for at least two months and the discharge had become so scanty that on two consecutive weekly examinations the pus was visible only on a wool-tipped probe after mopping through the perforation. The patient was then seen at weekly intervals, and if the quantity of the discharge increased a return was made to daily treatment. If all was well the ear was regarded as quiescent.

Quiescent ears were examined at weekly, monthly, or longer intervals according to the amount of pus present at each visit and the length of time since daily treatment had been discontinued. Any epithelial debris, wax, or bead of pus in the middle ear was removed, and if necessary the middle ear was flushed out with warm spirit, using an attic syringe. The ear was then dried with wool-tipped probes and lightly dusted with powder.

Granulation tissue and polypi were not treated until the ear had had one or two weeks' daily treatment. It was considered that an effort should first be made to reduce the amount of infection and allow for the shrinkage of inflamed mucous membrane. Sessile granulations were touched with a concentrated solution of trichloracetic acid on a fine wool-tipped probe, or, when a more penetrating action was desired, with a bead of chromic acid fused on to the tip of a fine straight or bent metal probe. Larger granulations were removed with cup forceps and the stump treated with one of the above-mentioned escharotics. Polypi were removed with an aural cutting snare or cup forceps after preliminary analgesia induced by 20% cocaine solution applied sparingly on pledgets of cotton-wool packed round the pedicle. Care was taken in cases where granulations or polypi arose from the inner wall of the middle ear or from the upper part of the posterior wall of the middle ear in proximity to the facial nerve.

Cholesteatoma in the middle ear was removed by the use of an attic syringe, bent probes, or forceps, after preliminary shrinking with spirit.

The reintroduction of infection via the external auditory meatus was diminished by stressing the importance of this route to the patient.

Results of Treatment of Chronic Suppurative Otitis Media

In presenting the results it has been necessary to allow for the high proportion of patients who did not continue treatment until the effect could be assessed. Out of 274 patients seen with chronic suppurative otitis media 39 attended for less than one week's treatment and 58 cases defaulted after longer periods of treatment. Six patients were still under treatment when the results were assessed.

Cases defaulting after less than one week's treatment can be disregarded, as can those still under treatment. It is not possible to ignore the third group. The incompletely treated group of cases having at least one week's treatment will consist of those patients who, as confirmed occasionally by subsequent examinations, rightly concluded that the ear was dry and did not return for final examination, and those patients with an ear condition not amenable to even a prolonged course of conservative treatment. To assess the results solely on these cases adequately treated would leave out of account an unknown quantity of considerable size. The figures presented (see Table VI) therefore represent the minima or maxima as the case may be.

TABLE VI.—*Chronic Suppurative Otitis Media. Results of Treatment*

	No. Seen	No. Where Treatment Completed	No. Where Treatment Completed + No. Partially Treated	No. Cured	% of Fully Treated Cases Cured	% of All Treated Cases Cured
Patients with unilateral disease	232	161	199	135	83·8	67·8
Patients with bilateral disease	42	26	36	14	53·8	38·8
Number of ears ..	316	213	271	173	81·2	63·8

It will be seen that out of 232 patients with unilateral disease 199 received one or more weeks' treatment and 161 had a full course of treatment. At its termination 135 were dry. This gives an "immediate" cure rate of 67.8% for patients receiving one or more weeks' treatment, or 83.8% for patients receiving adequate treatment. As already explained, the true cure rate will lie somewhere between these two percentages.

Of 42 patients with bilateral ear disease 36 received one or more weeks' treatment and 26 a full course of treatment. In 14 patients both ears were dry at the end of treatment, giving an "immediate" cure rate of between 38.8% and 53.8%. Of a further 10 patients in whom one ear became dry as a result of treatment the other ear was rendered quiescent in 6 and the remaining 4 ceased attending.

The average duration of treatment for the cured cases was 5.2 weeks (limits, 1 week to 7 months).

Table VII shows the duration of the otorrhoea in 276 ears. The "recurrent" ears are shown separately from the "continual" ears. It will be seen that 84% of the "recurrent" ears had been discharging for less than six months and 66% of the "continual" ears for more than five years. More than half of these ears had been discharging for more than one year.

TABLE VII.—*Chronic Suppurative Otitis Media. Duration of Otorrhoea and Results of Treatment*

	Less than 6 Months		6 Months to 1 Year		1 to 5 Years		Over 5 Years		
	Rec.	Cont.	Rec.	Cont.	Rec.	Cont.	Rec.	Cont.	Total
No. of ears ..	101	20	6	6	12	26	2	103	
Total ..	121 (44%)		12 (4%)		38 (14%)		105 (38%)		276 (100%)

In Table VIII 247 ears are classified according to the intermittency or otherwise of the discharge. Excluded from the table are 25 "continual" ears in which the duration of the discharge could not be determined.

TABLE VIII.—*Chronic Suppurative Otitis Media. Results of Treatment in "Recurrent" and "Continual" Cases*

	"Recurrent" Ears	"Continual" Ears				
Duration of Discharge:		Less than 6 Months	6 Months to 1 Yr.	1 to 5 Years	Over 5 Years	Total
Ears treated	112	17	5	23	90	135
Ears cured	92 (83%)	11 (65%)	4 (80%)	10 (43%)	43 (48%)	68 (50·4%)
Ears quiescent	5 (4·5%)	1 (5%)	0	1 (4·3%)	10 (11%)	12 (8·9%)
Ears failed	0 —	1	1	6	8	16 (11·8%)

Despite the high proportion of patients not completing treatment, 83% of the "recurrent" ears were treated with success in an average period of four weeks, while only 50% of the "continual" ears responded in an average period of 6.7 weeks.

There was no relation between the duration of the disease and the length of treatment necessary to effect a cure.

The "recurrent" group does not contain any failures, and the ears rendered quiescent are only half as frequent as those in the "continual" group. In the latter group it would appear that otorrhoea lasting longer than one year carries a worse prognosis for successful conservative treatment.

Marginal and superior perforations were found to occur most frequently in the "continual" cases and were rare in the "recurrent" cases.

A total of 90 ears were seen in which granulation tissue or a polypus arising from the middle ear or tympanic membrane was present. Of these, 55 showed granulation tissue and 35 showed polypi. The total figure represents 28.8% of all ears with chronic suppurative otitis media examined.

Of the "recurrent" ears treated, 19.3% had granulation tissue, compared with 35.5% of the "continual" ears. As a result of treatment it was found that there was a slight worsening of the prognosis when granulation tissue was present in the ear, but the better prognosis of the "recurrent" over the "continual" case was again observed. If the granulation tissue arose from the tympanic membrane or external auditory meatal walls only slight reduction of the cure rate resulted, but where the site of origin was from the tympanic ring or the middle ear the prognosis was much worse.

Six cases of cholesteatoma of the middle ear were seen. In three patients a dry ear was obtained.

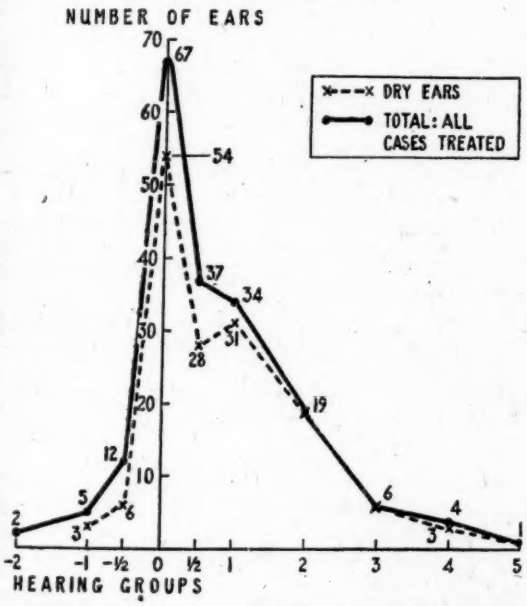
Relation between Hearing, Clinical Condition, and Effects of Treatment

Long duration of the disease since the first onset was not found to be necessarily associated with poor hearing, although severe deafness was relatively more common with cases of longer than five years' duration than with those of less than one year's duration.

The site of the perforation in the tympanic membrane was not related to the degree of hearing loss. Similarly, the possession of good hearing at the outset of treatment did not necessarily imply a good response to treatment, nor did the reverse hold true.

Table IX, in graphic form, shows the change in hearing as a result of treatment. The values marked along the abscissa

TABLE IX.—*Chronic Suppurative Otitis Media. Improvement in Hearing as a Result of Treatment*



NOTE.—Hearing groups are: (1) Whisper 0–2 ft.; (2) whisper 2–5 ft.; (3) whisper 5–10 ft.; (4) whisper 10–20 ft.; (5) whisper over 20 ft.

record the change in hearing according to the number of hearing groups. Thus, if an ear when first seen could hear a forced whisper at a distance of three feet, and at the end of treatment a forced whisper could be heard at a distance of 18 feet, the improvement in hearing is recorded as two groups. When the hearing improved only from, say, an ability to hear a forced whisper at a distance of three feet before treatment to five feet after treatment, the improvement is recorded as half a group. Ears showing deterioration of hearing are recorded on the left of the ordinate. The resulting curves show that in many ears the hearing is unchanged as a result of treatment, but that the hearing in the remainder was more often improved than worsened. Further, the upper curve shows that even when treatment did not result in a dry ear, or was discontinued before completion, some improvement in hearing resulted, although the left-hand half of the curve shows that deterioration was more common.

Recurrence of Otorrhoea After Successful Treatment

To obtain an estimate of the proportion of cases in which a relapse of infection occurred after treatment a postal questionary was sent to the patient after an interval varying from six to eighteen months. Replies were received from 65% of the total number questioned, and of these 27 attended for examination by the otologist. In addition 28 patients were examined at least six months after their last treatment.

Thus out of 235 patients 53 were examined by the otologist and 63 sent a report on their condition six to eighteen months after the termination of treatment.

The results of this follow-up are shown in Table X. The term "immediate" cure is applied when the ear is dry at the end of treatment and "prolonged" cure when the ear has remained dry for at least six months after the end of treatment.

TABLE X.—*Chronic Suppurative Otitis Media. Reinfection after Treatment*

	Examined by Otologist		Report from Patients	
	Unilat.	Bilat.	Unilat.	Bilat.
"Immediate" cure	37	3	42	2
"Prolonged" cure	20 (54%)	1 (33%)	29 (69%)	2
Relapse	17 (46%)	2	13 (31%)	—
"Immediate" quiescence	6	1	1	—
"Prolonged" cure	2	—	—	—
Still quiescent	4	1	1	—
Failure. (*In statu quo*)	1	—	1	—
Defaulted before treatment completed	5	—	15	2
"Prolonged" cure	1	—	4	—
In statu quo	4	—	11	2

Of the patients examined by the otologist it will be seen that of 37 "immediate" cures in unilateral cases 54% were "prolonged" and of 3 bilateral "immediate" cures in both ears only one was "prolonged." Of 6 unilateral and 1 bilateral cases "immediately" quiescent 2 unilateral cases subsequently became dry. Four unilateral and the one bilateral case were still in the same condition six or more months later.

Similarly, of the cases reported by the patients, 69% of the unilateral and both of the bilateral cases were said to be "prolonged" cures.

Examinations of patients suffering from chronic suppurative otitis media occasionally showed abnormal conditions in the opposite ear. Table XI summarizes the findings and shows the percentage incidence of the total number of patients examined (274). Of these patients 50.3% had evidence of past or present suppuration in the opposite ear.

TABLE XI.—*Chronic Suppurative Otitis Media. Conditions Present in Opposite Ear*

	No.	Percentage
Chronic suppurative otitis media (e.g., bilateral disease)	42	15·3
Healed otitis media	80	29·2
Healed cortical mastoidectomy	6	2
Healed radical mastoidectomy	10	3·6
Total	138	50·3% of 274 patients

Associated otitis externa was found in the affected ear in 17 cases of chronic suppurative otitis media.

In the whole series of cases a positive fistula sign was discovered in 2 cases, vertigo from labyrinthine irritation in 2 cases, and suspected intracranial complication in 2 cases.

Cases requiring surgical treatment may be considered under two heads. Those of relative urgency were two in number. Both exhibited a positive fistula sign. The other cases belong to the group in which conservative treatment failed and where surgical treatment would be one of convenience. In more than

half of these the hearing was of sufficient acuity to suggest the choice of an operation designed to preserve the residual hearing rather than the full radical operation.

Healed Otitis Media

The cases grouped under the term "healed" otitis media are those in which the ear-drum shows scars or perforations with no evidence of active infection such as pus, redness, or dilatation of the blood vessels. Those ears which are subject to recurrent attacks of inflammation and happen to be examined during a quiet phase will be included in this group. If the ear was initially examined during the quiet phase, and was later seen with a recurrence of inflammation, it has been placed in the group of recurrent chronic suppurative otitis media. Cases in which a mastoid operation had been performed are dealt with under a separate heading.

A total of 249 patients have been observed, of which 96 were right-sided, 78 left-sided, and 75 bilateral. In 32 cases there was a history of recurrent attacks of otorrhoea and of an attack within the previous five years.

Table XII shows the age at which the first attack occurred in those cases in which a history could be obtained. It will be seen that 57% of the patients stated that the initial attack occurred in the first decade of life.

TABLE XII.—*Healed Otitis Media. Age at Onset*

Age:	0–5	6–10	11–20	21–30	31–40	41–50	51–60	Over 60	Total
No. of patients ..	57	29	26	19	16	4	1	1	153
Percentage distrib.	37·3	19·0	17·0	12·5	10·5	2·5	0·6	0·6	100%

When the initial attack occurred more than 20 years previously 38% of the ears had a severe hearing loss (whisper heard at a distance of less than 5 feet) and only 51% had moderate or good hearing (whisper heard at more than 10 feet distance). By contrast, when the initial attack occurred within the previous 5 years only 10% had a severe hearing loss and 83% had moderate or good hearing. This indicates that progressive deafness will result from a healed infection.

Healed Cortical Mastoidectomy

A total of 28 ears have been seen, in which the disease was right-sided in 12, left-sided in 12, and bilateral in two. The age at the time of operation is shown in Table XIII.

TABLE XIII.—*Healed Cortical Mastoidectomy. Age at Operation*

Age:	0–5	6–10	11–20	21–30
Number of ears ..	3	10	13	2

Out of these 28 ears, 14 were found to have infection of the middle ear. In two the pus was coming from the attic region. One case of facial palsy due to the operation was observed. Of 10 ears receiving adequate conservative treatment on the lines detailed under "chronic suppurative otitis media" nine responded with cessation of the discharge, the average duration of treatment being 7.1 weeks. The other four ears with infection of the middle ear ceased attending for treatment before the result could be ascertained.

Table XIV shows the hearing recorded according to the state of the middle ear and the condition of the tympanic membrane. The presence or absence of infection in the middle ear does not appear to have any relation to the hearing in the small number of cases seen.

TABLE XIV.—*Healed Cortical Mastoidectomy. Hearing Loss*

	Middle Ear Dry, Drum Intact	Middle Ear Infected
Forced whisper heard 0–2 ft.	4	3
" " " 3–5 ft.	—	1
" " " 6–10 ft.	2	2
" " " 11–20 ft.	2	6
" " " over 20 ft.	6	2

Healed Radical Mastoidectomy

A total of 49 ears were seen, in five cases bilateral. Among these cases were five operated on by the transmeatal route and in six a modified operation had been performed with preservation of the tympanic annulus. In 24 ears the cavity was infected from the Eustachian tube. Four cases of facial palsy due to the operation were observed.

Table XV shows the duration of otorrhoea before the operation had been performed and the degree of deafness at the time of examination. Nearly two-thirds of the ears had had the operation within 10 years of the first onset of the otorrhoea. Despite this, 77% of the ears were severely deafened (forced whisper heard at five feet distance or less), indicating the serious effect on hearing of severe ear disease and the failure of the radical mastoidectomy operation to restore a useful degree of hearing.

TABLE XV.—*Healed Radical Mastoidectomy. Hearing Loss and Duration of Otorrhoea before Operation*

	Hearing Loss	Duration of Otorrhoea Before Operation				
		0–5	6–10	11–20	Over 20 Years	Duration not Known
No. of ears	49	8 (35%)	7 (29%)	5 (22%)	3 (13%)	26
Severe perceptive deafness	8					
Forced whisper heard 0–2 ft.	24					
Forced whisper heard 3–5 ft.	6					
Forced whisper heard 6–10 ft.	2					
Forced whisper heard 11–20 ft.	9					

Eustachian Obstruction

In 65 patients 96 ears were seen, of which 31 cases were bilateral and 34 unilateral. In 63 ears the condition had been present for less than two months; in the remainder the condition had been present for more than two months. In 33 ears the onset was associated with an acute upper respiratory infection. In two bilateral cases the middle ear of one side contained serous fluid, as shown by a fluid level and severe deafness. Both cases resolved with treatment.

Of these ears 41 were treated by inflation with Politzer's bag or a catheter, and all except five of the patients stated at its conclusion that the hearing had been restored to the previous level. Corroboration of their statements was not possible in all cases, as associated healed otitis media or perceptive deafness was present in some.

Clinical Otosclerosis

The ultimate diagnosis of otosclerosis depends on the demonstration by histological methods of the specific pathological lesion in the labyrinthine capsule. It is known that other conditions may give rise to clinical findings closely resembling true otosclerosis. In the absence of an exact dividing-line acceptable to all shades of otological opinion the term "otosclerosis" has in this work been qualified by the prefix "clinical." Furthermore, it is necessary to mention the principles which have been adopted in diagnosis.

The deafness is bilateral, but may be more pronounced in one ear. Its onset must be between the ages of puberty and 30 and the course slowly progressive. The upper age limit has not been exactly adhered to if there appeared to be a reasonable doubt about the age at onset. Several patients, while denying any hearing loss before the age of 30, admitted that their hearing was then not so acute as other people's. In conformity with the view that the condition is inherited, but with a recessive characteristic, a history of the disease in blood relations is not held to be essential, but its presence adds confirmation. A history of otitis media or thickening, scarring, or perforation of the tympanic membrane has excluded the case from the diagnosis of otosclerosis, though there is no reason why the two conditions should not exist in the same individual. The absence of pathognomonic changes in the tympanic membrane has, as with the family history, been regarded as confirmatory but not essential. Tuning-fork tests show the deafness to be of the conductive type, but concomitant perceptive deafness is counted as additional evidence. Finally no more than a slight and short-lived improvement in the hearing results from instrumental Eustachian inflation.

A total of 26 cases of clinical otosclerosis have been examined. A family history was obtained in 10 (38%). The average

age at which the deafness was first noticed was 22.5 years. In 14 (54%) a demonstrable degree of perceptive deafness was found with tuning-fork tests. Table XVI shows the hearing in the cases.

TABLE XVI.—*Clinical Otosclerosis. Results of Hearing Tests*

	Better Ear	Worse Ear
Forced whisper heard 0–2 ft.	22	24
" " " 3–5 ft.	4	2
" " " over 5 ft.	—	—

Conductive and Mixed (Conductive and Perceptive) Deafness of Unknown Aetiology

The cases placed in this category gave no history of previous inflammatory ear disease and the tympanic membranes were normal. No improvement resulted from instrumental Eustachian inflation. They have not been considered under the section on clinical otosclerosis because the age at which the deafness was first noticed was before puberty or well after the age of 30, or the onset of the deafness was of too recent an origin to judge whether spontaneous improvement would occur. It is possible that many of these cases are due to inflammatory adhesive processes in the middle-ear cleft, but no positive evidence for this could be found. A total of 7 cases of conductive and 13 cases of mixed deafness were encountered.

Perceptive Deafness

The cases considered in this section include those with perceptive loss of hearing as the sole cause of deafness and those in which, in addition, the deafness was partly due to lesions in the conductive mechanism of known aetiology. The exceptions are cases due to clinical otosclerosis and mixed deafness of unknown aetiology. A total of 117 cases were seen, and Table XVII shows the associated lesions or the conditions of possible aetiological significance present at the onset of the deafness.

TABLE XVII.—*Perceptive Deafness. Associated Lesions, or Conditions Present at Onset*

Chronic suppurative otitis media	6
Healed otitis media	32
Healed cortical mastoidectomy	1
Healed radical mastoidectomy	6
Industrial noise	8
Artillery and other forms of explosives	22
Toxic auditory neuritis	2
Meningitis	1
Arteriosclerosis	2
Concussion or fracture of base of skull	7
Post-influenzal	2
Post-operative	2
Pre-parturition	1
Congenital syphilis	1

In 57 patients no cause for the deafness was discovered, and the age of onset of this latter group of cases is shown in Table XVIII.

TABLE XVIII.—*Perceptive Deafness. Age at Onset of Cases with Unknown Aetiology*

	0–10	11–20	21–30	31–40	41–50	51–60	Over 60	Total
No. of patients	2	3	4	4	19	15	10	57
Percentage	3·5%	5%	7%	7%	33%	26%	18%	—

It will be noticed that there is a sudden rise in the incidence during the fifth decade of life. The number of fresh cases occurring during the next two decades tends to fall.

Other Conditions of the Ear not already Classified

Little comment is called for on these cases, which are shown in Table XIX. The cases of Ménière's disease were confirmed by abnormal responses to calorie tests.

TABLE XIX.—*Other Ear Conditions not already Classified*

Tinnitus as sole symptom	4
Ménière's disease	7
Vertigo from causes other than Ménière's disease	11
Referred otalgia from lesions of nose, mouth, and pharynx	6
Traumatic perforations of tympanic membrane; not infected	3
Positional vertigo	1

Conditions of Nose and Throat

The conditions mentioned in Table XX occurred in patients who consulted their industrial medical officer in preference to their own medical practitioner or local hospital. In many instances the symptoms were considered by the patient to have been caused by his work. In most cases the patient had recently come to live in the district and was not familiar with the local non-industrial medical services.

TABLE XX.—*Conditions of Nose and Throat*

Nose:	
Vasomotor rhinitis	14
Chronic rhinitis	8
Vestibulitis	3
Epistaxis	1
Deviation of nasal septum	3
Nasal polypus	13
Nasal sinusitis	8
Throat:	
Acute pharyngitis and tonsillitis	5
Chronic pharyngitis	2
Chronic tonsillitis	9
Chronic catarrhal laryngitis	5
Fibroma of larynx	1
Tuberculous laryngitis	1
Nasopharyngeal carcinoma	1
Post-cricoid carcinoma	1
Unclassified	3

The case of tuberculous laryngitis occurred in a woman aged 22 whose chest was said to have been radiologically normal three months previously. There is no doubt that this woman was sent away for proper treatment at an earlier date than she would have been if a visiting specialist had not been readily accessible at the factory.

Table XXI lists the examinations conducted for suspected disease of the ear, nose, or throat where nothing abnormal was discovered. It may be noted that, with the exception of the cases examined for suspected focal sepsis, these patients would rarely be seen in hospital practice, although they are only too familiar to the general practitioner.

TABLE XXI.—*Suspected Disease of Ear, Nose, or Throat. Nothing Abnormal Found*

Otalgia	19
Symptomatic deafness	20
Symptomatic otorrhoea	10
Suspected ear, nose, or throat disease acting as a focus of sepsis	9
Suspected retained pharyngeal or oesophageal foreign body	4

A further 24 patients were found on examination to have miscellaneous conditions of other parts of the head or neck.

General Observations on the Clinical Results

The results of ear disease in the majority of cases are not dangerous to life but will cause varying degrees of disability. In severe cases a fatal termination or a temporary or permanent loss of wage-earning capacity may ensue. In the less severe cases there will be an interference with the general well-being and activities of the individual. The loss of efficiency resulting from pain or deafness will depend on the severity and duration of the symptoms, and to some extent on the type of work in which the sufferer is engaged. It will be of value, therefore, to examine the clinical material presented here from this aspect.

Out of the total of 274 individuals found to have chronic suppurative otitis media only two were suffering from a form of the disease in which surgical treatment was considered urgent and in which the risks of neglect would endanger life. In a further 16 individuals conservative treatment had failed and a surgical operation was necessary as a matter of convenience to prevent development of dangerous complications. Thus surgery, immediate or delayed, was necessary in only 9% of the total of 187 receiving treatment.

The major cause of loss of working efficiency was pain. The degree of pain was greatest and of the longest duration with inflammatory conditions of the pinna and external auditory meatus. Infection of the middle ear rarely caused pain, and when it did it was of short duration and not usually of great severity. The frequency of otitis externa and the duration of the treatment made this condition of major importance in the organization of the factory ear-treatment service. Although the permanent effects did not give rise to the same disability as those following otitis

media, the liability to recurrence of the attacks caused in the aggregate a considerable degree of loss of efficiency.

The effect of deafness on the daily life of the sufferer was noticeable in several ways. Where there had been a sudden diminution of hearing, as from an occluding plug of cerumen, acute otitis media, or an increase in the rate of progress of a progressive deafness, the patient was continually conscious of this disability, and this preoccupation caused interference with the capacity for work. On the other hand, a progressive deafness increasing at a slow, even rate was better tolerated and its severity was often not fully appreciated. Psychological adaptation to deafness was rarely judged to be complete. In the essentially communal nature of work in the factory the sufferer felt the gulf dividing him from his fellows, and this affected the contentment of his outlook on life. The direct effect of deafness on the efficiency of his work varied with his job. In the majority of cases good hearing was not essential. The general level of factory noise may often be such that conversation can be carried on only with a raised voice. If the threshold of hearing of the deafness is less than the factory noise no disability will result. It is only with certain processes carried out in quiet workrooms that good hearing may be an advantage, but it is seldom a necessity. For supervisors or clerical workers, however, the possession of fair hearing is usually important, and a deaf worker would thus find his chances of promotion curtailed. A few cases of intolerance to excessive noise have been observed, and, although this may occasionally have been a psychological "escape" reaction from monotonous work, it necessitated the individual being moved to another job in quiet surroundings. There his lack of experience may have rendered him less efficient at the work.

Working efficiency can be affected by the home life and activities outside the factory. A sense of physical inferiority induced by the deafness may exist, and even if the disability is only apparent in social intercourse the mental stress so caused may affect the relations with friends. Hence, while pain can cause a marked but short-lived loss of working power, incurable deafness, although less crippling in any one individual, may, because of its much greater incidence, be an equally important cause of loss of efficiency in the working population.

The deafness resulting from the various types of disease has already been mentioned under the appropriate sections. Out of 393 cases of severe deafness (forced whisper heard at less than 5 feet distance) due to all types of disease, 49.3%, or nearly half, were due to active or healed otitis media. Cases of otitis media associated with perceptive deafness (19%) are not included in this group.

The correct management of otitis media in the early stages, before the onset of incurable deafness, is therefore of importance. As the onset most often occurs in childhood (Tables V and XII) general-practitioner and school-treatment services are responsible for the treatment. That these services are inadequate is shown by the survey conducted among factory workers, where 3.3% were found to be suffering from chronic suppurative otitis media.

It has been shown in Table VI that treatment carried out in a factory medical department will result in a dry ear in 67% to 83% of the patients with unilateral otitis media and 38% to 53% of those with bilateral otitis media (both ears dry). From 5% to 6% of patients with unilateral ear disease will obtain a quiescent ear with such treatment. (Precise figures for the cure rates cannot be given, for the reasons stated previously.) Examination at a later date will show that more than half of the ears initially dry after treatment will relapse (see Table X), although a further course of treatment will be successful in most cases. The ears rendered quiescent by treatment stand a good chance of remaining in this state with an occasional toilet, and some may eventually become dry.

If, therefore, 100 patients with unilateral chronic suppurative otitis media are given a full course of conservative treatment in a factory medical department it can be surmised from the results obtained in this investigation that 38 will have a dry ear for at least six months, 45 will have a dry ear at the termination of treatment but will relapse in under six months (although standing a good chance of cure with subsequent treatment), 6 will be rendered quiescent, and 11 will need a surgical operation.

It is thus apparent that conservative treatment will result in cessation of the infection in a high proportion of cases, but the liability of the treated ear to reinfection indicates the deficiencies in this form of treatment and the poor prospect of obtaining a lifelong cure. The conservative treatment of relapses as they occur has the advantage of retaining a greater degree of hearing than treatment by a surgical operation. But even when the latter method is employed occasional treatment will subsequently be necessary.

The Future Expansion of Factory Otological Treatment

The results of treatment obtained in the factory medical department are not as successful as those carried out under ideal conditions, but they compare favourably with those obtained in the average hospital otological out-patient department. The present investigation has been of short duration and therefore temporary. It can reasonably be expected that if a permanent service were to be set up the larger numbers dealt with and the greater dexterity of the nursing staff would improve the results of treatment. For cases requiring daily treatment, interruption at week-ends and at public holidays delays or prevents healing and is a drawback to any scheme of factory treatment that may be considered. But for most cases factory treatment is adequate and has the overriding advantage of ready accessibility to the sufferer.

The present overloading of hospital facilities would be eased by a factory ear-treatment service which by a dissemination of otological knowledge would act as a screen for the less serious cases and by prevention reduce the incidence of serious complications.

With the present shortage of trained otologists it is essential that the fullest use should be made of their time. It is necessary, therefore, that factory clinics should be large enough to justify the time spent by the otologist in travelling to the factory. From experience gained in the present investigation it is probable that a unit employing 5,000 persons would provide enough cases to justify the organization of a treatment service, and that a unit of 15,000 persons would require the services of an otologist for three hours once a week. Daily treatments arising in larger units would take a nurse from one to two hours each day to perform. Any permanent scheme could be satisfactorily conducted by a medical practitioner sufficiently skilled in otology to reach "registrar" status, or by one who has had the equivalent of two years' whole-time experience in otolaryngology. It would be desirable for him to be based on or have a close liaison with the ear department of the local hospital (such as a clinical assistantship), so that unusual cases could be referred there for fuller investigation and the opinion of the consultant.

Single factories employing large numbers of individuals are unusual in Great Britain, but industrial medical officers are of the opinion that it would be feasible to organize a treatment service based on a small factory which could treat the employees of other factories in the near district. Each

manufacturing area would present its own problems of organization, but in a congested area such as Birmingham a considerable proportion of the factory population could be included.

The prevention of deafness is an important factor in the nation's health. An ear-treatment service based on the factory is a feasible method, causing the minimum interference with the productive capacity, of arranging treatment for a part of that section of the community of great importance to the economic wealth of the country.

Summary

Chronic ear diseases, in particular chronic suppurative otitis media, are potent causes of inefficiency, invalidism, or early death. Experience during the 1939–45 war showed that disease of the ear was a serious cause of wastage of man-power. The high incidence of this disease is largely due to inefficient treatment resulting from the absence of an ear-treatment service adapted to the economic needs of the population.

Before and during the last war many industrial concerns set up medical departments to safeguard the health of the employees and to treat minor injuries sustained at work. This report gives an account of otological work carried out in seven factory medical departments over a period of eighteen months, with the object of ascertaining (*a*) the incidence of suppurative otitis media in factory workers and (*b*) the results of treatment of ear disease in the factory medical department.

To determine the incidence of ear disease in the factory population 1,902 employees, selected at random, were examined. Of these, 3.3% were found to be suffering from suppuration in the middle ear and 17.8% had active or healed middle-ear disease.

A total of 1,711 patients complaining of ear, nose, or throat symptoms were examined at clinics set up in the factory medical department: 389 were found to be suffering from disease of the pinna and external auditory meatus, and 274 from chronic suppurative otitis media. The effect of otitis media in the causation of deafness and the results of treatment are considered in detail.

From the results of treatment it is deduced that, if 100 patients with unilateral chronic suppurative otitis media receive a full course of conservative treatment in a factory medical department for an average period of 5.2 weeks, 38 will have a dry ear at the end of treatment and will keep dry for at least six months after its termination, 45 will have a dry ear at the end of treatment but will relapse in less than six months (although standing a good chance of cure with subsequent treatment), 6 will be rendered quiescent, and 11 will need a surgical operation. The results show that conservative treatment will result in cessation of infection in a high proportion of cases, but the prospects of obtaining a lifelong cure are poor. It is concluded that a surgical operation does not offer an effective alternative method of treatment in all cases.

The effects of deafness and pain on the working capacity of the factory employees are discussed. It was found that in manual workers productive efficiency was affected more by pain than by deafness but that the latter may be a handicap to promotion.

The future expansion of otological treatment in factory medical departments on a permanent basis is discussed, and it is concluded that such a scheme is feasible, is adapted to the needs of the working population, and would reduce the present overloading of the hospital services.

I am indebted to Mr. Terence Cawthorne for his advice throughout the investigation; to Dr. Donald Stewart for advice on industrial medicine and for providing the link with industry; to Mr. C. S. Hallpike for help in the preparation of this paper; to the following industrial medical officers—Dr. J. G. Billington, Dr. E. H. Capel, Dr. J. G. Lawson, Dr. W. Jeaffreson Lloyd, Dr. W. A. McClennan, Dr. N. G. Marr, and Dr. A. White—for their help in the organization of an ear-treatment service; to the directors of the following organizations—Austin Motor Co., Ltd., James Booth & Co., Ltd., Birmingham Small Arms Co., Ltd., General Electric Co., Ltd., Guest, Keen, and Nettlefolds, Ltd., Imperial Chemical Industries, Ltd., and Joseph Lucas, Ltd.—for their co-operation in the investigation; and to the nursing staffs of the above-mentioned organizations for undertaking the treatment of patients.

VITAMIN D IN TREATMENT OF BOECK'S SARCOIDOSIS

BY

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Besnier–Boeck–Schaumann's disease, commonly known as Boeck's sarcoidosis, is now recognized as a diffuse reticulo-endotheliosis with the formation of a folliculoid tissue affecting particularly the lymphoid and haemopoietic tissues. The organs most commonly involved are the lymph nodes, spleen, lung, bone marrow, liver, eyes, and, in 50% of cases, the skin.

The skin lesions, when present, tend to cause considerable disfigurement, and hence from the patient's point of view constitute the main problem of the disease, which in other respects tends to be a benign condition without pain and systemic upset, and which progresses very slowly over a number of years. The skin lesions are of two types: (1) A symmetrical granulomatous condition affecting chiefly the nose, cheeks, ears, and fingers, described by Besnier in 1889 under the name lupus pernio. (2) Multiple granulomatous swellings of varying size affecting chiefly the face and upper limbs and having a translucent appearance. To these lesions Boeck in 1897 gave the name of cutaneous sarcoids.

It is clear that the skin lesions closely resemble tuberculous lupus vulgaris. Indeed, without a skin biopsy it is often difficult or impossible to separate the two conditions.

The resemblance to tuberculosis is not confined to the skin lesions, and in recent years many writers have speculated on the possibility of sarcoidosis and tuberculosis being variants of the same disease. The following points provide good reason for such speculation: (1) The basic pathological lesion in sarcoidosis, the sarcoid follicle, consists of endothelioid cells and a zone of lymphocytes just as in the tubercle follicle. There is, however, no caseation, and the presence of tubercle bacilli cannot be demonstrated. (2) The distribution of the disease process in sarcoidosis—i.e., in the reticulo-endothelial system—is essentially the same as in tuberculosis. (3) The development of active tuberculosis is the commonest cause of death in sarcoidosis, but whether this is *post hoc* or *propter hoc* it is not possible to say.

The position has been adequately summarized by Cameron and Dawson (1946), who state that "while there is much against the idea of a tuberculous basis, notably the frequent absence of a positive Mantoux reaction, there are sufficient resemblances, clinical, radiological, and histological, to suggest a probable causal relationship." It may be that sarcoidosis is a low-grade tuberculosis of non-caseating type.

In view of the recent successful treatment of lupus vulgaris with calciferol it seemed possible that the skin lesions in sarcoidosis might react favourably to similar treatment and thus alleviate considerable aesthetic embarrassment in patients so afflicted. Care, however, was required in selecting suitable cases, since spontaneous improvement is a common phenomenon in sarcoidosis and this might be erroneously attributed to the administration of calciferol. Eventually one case was selected in which the lesions had been slowly progressing for a period of nine years and in which spontaneous improvement was not expected.

Report of Case

The patient, a single woman, came to the Royal Infirmary, Edinburgh, for the first time as an out-patient in 1938, when she was aged 43. Her past history was negative apart from a tendency to bronchitis. At that time she had a well-marked lupus pernio causing an erythematous induration of the nose,

cheeks, the forehead above the bridge of the nose, and a small area under the chin. There was considerable disfigurement. The process had started six years previously with nasal obstruction and discharge and a red patch on the left side of the nose which had gradually extended.

The "cutaneous sarcoid" element was also present in the form of raised indurated areas on the dorsal aspects of both arms above the wrists. In addition the fingers were markedly swollen and distorted and purple in colour, with breaking down of the nails of the most affected fingers. The toes showed similar but less severe changes. The rest of the skin surface was normal.

There was no clinical evidence of the other common manifestations of sarcoidosis, such as enlarged spleen, enlarged lymph glands, and uveoparotitis, but skiagrams of the hands and feet revealed the classical osteitis cystica changes. A skiagram of the chest showed prominence of the hilar shadows, which is typical of sarcoidosis, but there was no evidence of the more classical multiple nodular opacities in the lungs; there was also calcification of glands in the left hilum, indicating a previous tuberculous infection. The Mantoux test was negative, as would be expected in sarcoidosis. A skin biopsy was not done, since the diagnosis was not in doubt.

Between 1938 and 1947 the patient reported many times at the Royal Infirmary. Her general state of health remained excellent and she had no complaints apart from the disfigurement. Ultra-violet therapy and deep *x*-ray therapy did not improve the skin lesions. A photograph taken in 1943 is reproduced to indicate the appearance at that time (Fig. 1). In June, 1947, she was admitted with a view to instituting calciferol therapy. Fig. 2 demonstrates the state of the skin lesions before the administration of calciferol. The lupus pernio had become slightly worse since 1943, and a new patch had appeared on the upper lip. The fingers were also more involved, with ulceration of the skin in several areas. It is clear that the condition had been slowly progressing since the time of her first visit in 1938.

FIG. 1.—Showing the erythematous induration of the lupus pernio in 1943. The appearance was similar but less marked in 1938.

FIG. 2.—June, 1947, before calciferol therapy. The lupus pernio is more extensive and an additional patch has appeared on the upper lip.

Calcium metabolism was investigated for the first time, with the following results: serum calcium, 10.6 mg. per 100 ml.; serum phosphorus, 3.9 mg. per 100 ml.; alkaline phosphatase, 5 units (King); acid phosphatase, 3 units (King); calcium balance, normal. Hence, despite the radiological changes in the bones, there was no disturbance of calcium metabolism.

The B.S.R. was 3 mm. in 1 hour (Westergren), indicating the absence of rapid tissue destruction. Haemoglobin, red blood cell count, white blood cell count, and differential count were essentially normal. The blood urea was 47 mg. per 100 ml.

An interesting phenomenon was observed on performing a 1 in 1,000 Mantoux test. No reaction was visible after the customary 48 hours, but a definite strong positive was present after 72 hours. The same delay was found with 1 in 100 tuberculin. The previous Mantoux test, in 1938, was given as negative, but it might not have been observed for more than 48 hours. There is no mention in the literature of a delayed positive in sarcoidosis. It may be that this phenomenon has resulted in some cases being given as Mantoux-negative when in actual fact they are delayed positive.

Calciferol therapy was started with 100,000 units daily by mouth in the form of high-potency "ostelin" tablets. This was continued for 15 days (total, 1,500,000 units), when the appearance of violent toxic effects compelled stoppage of the drug. The toxic effects were similar to those reported by Dowling, Gauvain, and Macrae (1948)—namely, thirst and polyuria, constipation, headache, tiredness, loss of appetite, and sickness. There was no rise in the serum calcium, indicating once more that toxicity is not directly related to biochemical changes. The blood urea, however, rose to 60 mg. per 100 ml.

FIG. 3.—September, 1947, two months after cessation of calciferol therapy. Apart from residual deformity of the nose, the face is almost normal in appearance.

During the period of the toxic effects—three weeks—dramatic improvement occurred in the skin lesions. The erythematous induration of the lupus pernio largely disappeared and the patient no longer felt diffident about appearing in public. The gross lesions in the fingers did not improve to such an extent, but the swelling was reduced and the ulceration which had appeared in the last year cleared up. The slighter lesions of the toes also showed some improvement. It is interesting to note that the main clinical improvement occurred during the period of alarming toxic effects. When these had settled down calciferol was administered again in reduced dosage (50,000 units every second day), but the patient was still intolerant, and treatment was suspended after two weeks. Nevertheless the clinical improvement has been maintained (see Fig. 3).

Comment

It has been pointed out that, in the treatment of lupus vulgaris, calciferol may "flare up" a tuberculous lesion elsewhere (Dowling and Prosser Thomas, 1946; Dowling, Macrae, and Jones, 1946; Powell, Pearsall, and Wigley, 1948). This may also apply in sarcoidosis, since a radiological follow-up in the present case shows slight progression of the osteitis cystica changes during the period of improvement of the skin lesions. The radiological appearances in the chest have not altered, but the patient's bronchitic symptoms have become worse. In view of this unfortunate tendency calciferol should not be used in the treatment of sarcoidosis unless the skin lesions are of sufficient degree to justify the risk.

Peterkin (1947—personal communication) has found that, apart from "flaring up" a distant lesion, calciferol may cause extension and ulceration of the lupus pernio. It is interesting that in the present case during the first week of therapy the patient complained of tingling in the facial lesion and the erythema became more pronounced, thus giving rise to considerable anxiety. This is another risk which should be kept in mind when calciferol therapy is contemplated.

Summary

A case of Boeck's sarcoidosis is presented in which the skin lesions had been slowly progressing for nine years and in which, therefore, sudden spontaneous improvement was not expected.

The administration of calciferol in the form of high-potency ostelin tablets resulted in dramatic improvement of the skin lesions. The main improvement occurred during a three-weeks period of severe toxic effects unrelated to the level of serum calcium.

The relationship of sarcoidosis to tuberculosis is discussed. It may be that they are the same disease. The response of the skin lesions of sarcoidosis to treatment with calciferol resembles that of lupus vulgaris, this being another point in favour of a close relationship.

In view of the risks of "flaring up" a sarcoid lesion elsewhere and of causing sudden extension and ulceration of the skin lesions, calciferol should not be used in the treatment of sarcoidosis unless the skin lesions are extensive and disfiguring.

A delayed positive tuberculin reaction is described in sarcoidosis.

I am greatly indebted to Professor Charles Cameron for his advice and criticism and for the photographs taken in 1947. I am also indebted to the Department of Radiotherapy, Edinburgh Royal Infirmary, for the photograph taken in 1943. I wish to thank Dr. W. D. D. Small for permission to publish the case.

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ARSENICAL ENCEPHALOPATHY DURING TREATMENT OF TROPICAL EOSINOPHILIA

BY

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Prebble (1946) made an extensive survey of the literature on arsenical encephalopathy during treatment of syphilis and reported 187 cases of encephalopathy among Indian troops treated for syphilis as in-patients. He concluded that Indians are particularly susceptible to the condition.

He referred to a report by Glaser and Immermans on two non-fatal cases of encephalopathy which had received arsenic for conditions other than syphilis. Lees (1937) also observed this condition among cases of disseminated sclerosis and Hodgkin's disease after the administration of an arsphenamine product. Viswanathan (1947) reported the post-mortem appearances in a patient with tropical eosinophilia who developed encephalopathy after two 0.3-g. injections of neoarsphenamine. He, however, did not state whether syphilis was definitely excluded before treating the case as tropical eosinophilia. A further case of tropical eosinophilia in which encephalopathy developed after two 0.3-g. injections of neoarsphenamine and death occurred is described below.

Case Report

A Tamil mess cook aged 26 was admitted to 48 Indian General Hospital on Oct. 8, 1946, with a complaint of cough and breathlessness on exertion. The chest showed rhonchi all over it. A skiagram revealed changes associated with chronic bronchitis but no evidence of tuberculous infection. The total leucocytic count was 12,400 per c.mm., with 61% eosinophils—i.e., absolute eosinophilia of 7,564 per c.mm. The Wassermann reaction and Kahn test were negative. Tropical eosinophilia was diagnosed and 0.3 g. of neoarsphenamine was given on Oct. 24 and on Oct. 27. He complained of fever and shivering after the second injection, and became dull and apathetic on Oct. 30. The temperature rose to 103.8° F. (39.9° C.); a blood film showed no malaria parasites. He suddenly became restless and began to have convulsions on Oct. 31; later he became delirious and finally coma supervened. His respirations were stertorous, eyes fixed, pupils dilated, and the reaction to light was sluggish. There was no neck rigidity. Abdominal reflexes were absent, deep reflexes were exaggerated, and plantar response was flexor. Blood pressure was 150/85, blood urea 60 mg. per 100 ml. Blood films showed no malaria parasites and urine contained no sugar or acetone. Coma deepened, and he died within eight hours of the onset of acute symptoms. Necropsy was performed ten hours after death. All organs, except the central nervous system, lungs, and liver, were within normal limits.

Macroscopic Appearances.—The pia-arachnoid all over the brain was congested and meningeal vessels were full. Cerebral grey matter was hyperaemic, and small blood vessels in the white matter of both hemispheres were congested. The choroid plexus was very engorged. No haemorrhages were detected on the surface of the brain or on section. The pleural cavity contained no free fluid or adhesions. The lining membrane of the right and left bronchi was congested. Bronchioles were slightly dilated; their mucous membrane was congested, and they contained mucopurulent secretion. The lungs showed no evidence of bronchopneumonia on palpation or on section. The liver was normal in size, and the cut surface revealed no change.

Microscopical Appearances.—Brain:—Examination revealed lymphocytic infiltration of the perivascular spaces and of the substance of the brain tissue in the vicinity of the capillaries. The capillary endothelium was swollen. Liver cells showed fatty change and foci of necrosis infiltrated by lymphocytes. I have no record of the histopathology of the lung. Cerebrospinal fluid taken during necropsy showed the following findings: total cell count, 280 cells per c.mm.; type of cells, 95% mononuclears, consisting of lymphocytes, plasma cells, and endothelial cells; stained deposit, no organisms; protein, 180 mg. per 100 ml.; Nonne–Apelt reaction, positive 1; Wassermann reaction, one volume of a 1 in 5 dilution showed partial inhibition of lysis; with one volume of a 1 in 2.5 dilution, one volume of undiluted fluid, and two volumes of undiluted fluid lysis of cells was inhibited. The Wassermann test was carried out by Wyler's modification.

Comment

This case was diagnosed clinically as arsenical encephalopathy. Post-mortem findings did not show haemorrhages or demyelination — important characteristic features of arsenical encephalopathy according to earlier writers. Prebble (1946), however, reported that these features were observed in only one out of 40 patients whose brains were closely studied by Krainer at the Central Military Pathological Laboratory, Poona. Microscopical appearances of the brain tissue in my case were similar to those described by him in some of his cases. The disease process in the liver was not so advanced that it could have caused death, but it was very probable that the damaged liver cells delayed the metabolism of arsenic as suggested by Friedman and Shinefeld (1941).

During life the patient gave no history of syphilis or of lapsed treatment. He had been attached to the hospital as a mess cook for three years and had not sought admission to a special treatment centre for venereal diseases during that time; nor did he show any signs or symptoms of meningeal, cardiovascular, or parenchymatous syphilis during life. Microscopy of the brain tissue also did not reveal any evidence of syphilis. Lymphocytic infiltration of the perivascular spaces has been regarded as a general form of central nervous system reaction and is not indicative of any one pathological condition. The blood Wassermann reaction and Kahn test were negative four days before he was put on neoarsphenamine. Cerebrospinal fluid collected during necropsy, however, gave a positive

Wassermann reaction. Technical error was excluded by repeating the test on the same fluid, and cross-checking was afforded by three other tests on the fluid—namely, protein, total number of cells, and globulin. All three were increased. Absence of evidence of syphilis during life and on necropsy raised a question whether the positive Wassermann reaction was a biological false positive result. This is very probable, but could not be definitely decided, as spinal fluid was not examined during life.

Reynolds (personal communication) states that of the many conditions in which the biological false positive reactions have been reported in the spinal fluids encephalomalacia is possibly the only one which suggests that post-mortem changes can cause a false positive reaction in cerebrospinal fluid. Stokes *et al.* (1944) mentioned cadaver blood as one of the conditions giving false positive serological reactions. Thomson (1947) quoted Bertolozzi, who found positive reactions in sera of a large percentage of 50 corpses whose blood he examined, but Kolmer (1928) stated that blood collected before bacterial contamination takes place would not give false positive reactions. I could not find any reference in the literature to the false positive reaction in cerebrospinal fluid collected after death. Four other cerebrospinal fluids that were collected after death and examined by me two to three days later showed a trace of blood and were found to be anticomplementary. It is hoped, however, that those who have facilities will report on the incidence of false positive reactions in cerebrospinal fluid collected after death.

Summary

A case of arsenical encephalopathy in an individual in whom no evidence of syphilis could be established during life or on necropsy has been described.

Absence of evidence of syphilis suggested that the positive Wassermann reaction of the cerebrospinal fluid collected ten hours after death was a biological false positive.

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The Minister of Food has appointed a working party to make recommendations about precautions which are considered practicable and desirable for securing the observance of sanitary and cleanly conditions in the catering trade. Sir William Savage, consultant to the County Medical Officer of Health for Somerset, has accepted the Minister's invitation to act as chairman. The other members are: Mr. H. E. Burdett (Fullers, Ltd.); Mr. P. N. R. Butcher (Ministry of Health); Mr. H. Crane (National Union of General and Municipal Workers); Mr. W. C. Crozier (catering manager, Scottish C.W.S.); Mr. N. R. C. Dockeray (Ministry of Food); Mr. P. T. Grove (Permanent Vice-president of the Health and Pleasure Resorts); Mr. E. Hartley Smith (hotel proprietor); Mr. J. Hollingshead (Director of Catering Division of British Tourist and Holidays Board); Mr. R. Hood (Richard Davis, Ltd.); Mr. G. M. B. Hutcheson (Director of Hotels Division of British Tourist and Holidays Board); Brigadier S. O. Jones (Director of Home Holidays Division of British Tourist and Holidays Board); Dr. W. A. Lethem (Ministry of Food); Mr. E. Vivian Rogers (Wm. Hancock and Co., Ltd.); Mr. A. W. Ritchie (Chief Sanitary Inspector of the City of Edinburgh); Dr. A. J. Shinnie (Medical Officer of Health for the City of Westminster); Mr. L. W. Slark (John Gardiner (London), Ltd.); Dr. E. L. Sturdee (Ministry of Health); Dr. I. N. Sutherland (Department of Health for Scotland); Dr. R. Sutherland (Medical Adviser and Secretary to the Central Council for Health Education). The working party held its first meeting on Nov. 26.

AORTIC COARCTATION WITH PATENT DUCTUS ARTERIOSUS

BY

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Coarctation of the aorta and patent ductus arteriosus are now recognized as defects which are amenable to surgical treatment, but the opportunity seldom arises of treating them simultaneously. The following case is reported because of its rarity, the development of characteristic signs at an early age, and the electrocardiographic findings.

Case Report

The patient had been treated for pink disease at the age of 2 years 4 months. The presence of a systolic murmur was noted and the diagnosis of congenital heart disease made, but the precise defect was not determined. When seen on Nov. 27, 1947, at the age of 7, she presented typical signs of aortic coarctation. She had always been a quiet child and disinclined to take much exercise, but cyanosis had not been observed. Her nutrition was poor and she was undersized for her age.

A systolic murmur of a rumbling character was audible at the apex and a soft systolic murmur was heard along the left border of the heart and to a less degree over the praecordium. A more pronounced systolic murmur could be heard over the whole of the posterior thorax but was maximal over the scapulae. The blood pressure in both arms was 140/70. The femoral arteries were imperceptible and blood-pressure readings could not be obtained. In the stooping posture arterial pulsation was visible and palpable medial to the vertebral border of the left scapula. The electrocardiogram showed right axis deviation (Fig. 1). *X*-ray films of the chest revealed

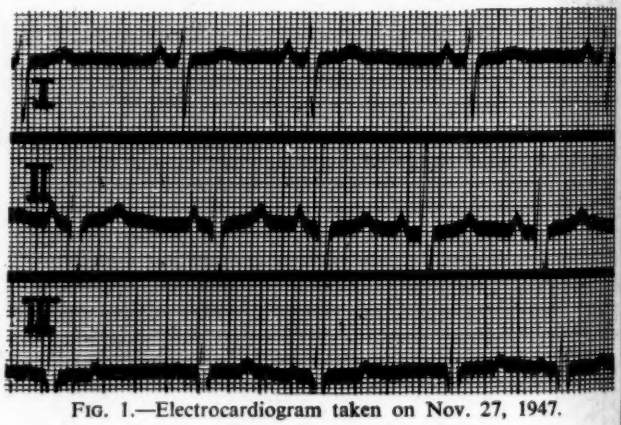

FIG. 1.—Electrocardiogram taken on Nov. 27, 1947.

notching of the ribs and a double shadow in the region of the aortic knuckle. The possibility of a patent ductus was anticipated because of the right axis deviation (Gilchrist, 1947), although there was no systolo-diastolic murmur.

Operation, Nov. 28, 1947

Cyclopropane and oxygen were given through an endotracheal tube and closely fitting face-piece connected with a rebreathing system incorporating the Waters absorber. With the patient in the right dorso-lateral position a curved incision was made below the left breast from the edge of the sternum opposite the third costal cartilage to the posterior axillary line. A flap of skin and pectoral muscles was reflected up and the chest opened through the third interspace, with section of the

third costal cartilage. The chest wall was more vascular than normal, but not nearly so vascular as in two adult cases of aortic coarctation.

On examination of the mediastinum the aortic arch was felt pulsating forcibly, but below a point 1 cm. distal to the left subclavian artery there was no pulsation and a slight systolic thrill was felt. The mediastinal pleura was incised and reflected to expose the main arteries and the vagus nerve (Fig. 2). An aortic coarctation, marked by a narrowing of the exterior and by a palpable thickening of the wall, was found 1 cm. beyond the left subclavian artery, and a small patent ductus, suspected clinically, was attached to the aorta near the level of the coarctation. The ductus was about 5 mm. in diameter and proved very friable; during its mobilization and division it tore in the angle of junction with the aorta, and the ligature cut through it at the pulmonary artery end. These difficulties, not encountered in any of ten uncomplicated cases of patent ductus treated by ligation, took some time to overcome, but the blood loss was not severe. The aorta and left subclavian and intercostal arteries were mobilized without division of any of the latter.

A Blalock type of clamp was applied across the aorta and left subclavian artery and a second clamp to the aorta 3 cm. below the coarctation. Two intercostal arteries were controlled

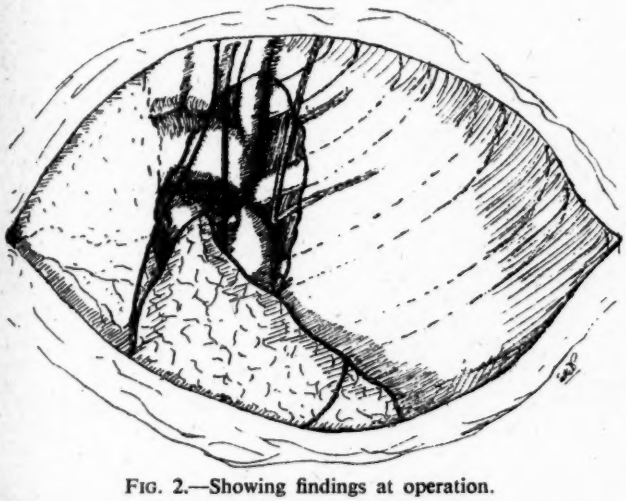

FIG. 2.—Showing findings at operation.

by bulldog clips. The coarctation was resected and found to be almost complete, admitting only a fine probe. The opening of the ductus was immediately distal to the coarctation. The ends of the aorta were anastomosed by two stay stitches and a single running suture of black silk on an eyeless needle. The suture passed through all coats and an endeavour was made to get square apposition of the cut ends of the vessel.

On removal of the clamps there was slight leakage from the right side of the suture line, but this was easily controlled by a patch of fibrin foam. The chest was closed and the air aspirated from the pleural cavity by a needle inserted intercostally above the wound.

Progress

The patient was nursed in an oxygen tent for a few hours. Four days after operation 80 ml. of blood-stained fluid was aspirated from the left pleural cavity. Convalescence was complicated by a swinging temperature, which became normal two days after stopping penicillin and sulphamezathine. She was allowed up eighteen days after operation, and subsequent progress was uneventful. Five days after operation the blood pressure in the arms was 118/80 and the femoral and popliteal pulses were palpable. Two months later the arm blood pressure had fallen to 90/58. The generalized systolic murmur disappeared immediately after operation, but a low-pitched rumbling systolic murmur has persisted over a limited area near the apex. The significance of this murmur is uncertain, but it may be due to some degree of mitral stenosis.

At the time of writing the patient is a very lively, healthy-looking child, and the parents have commented on the great improvement in her general condition and activity. There has been a striking increase in the muscular development of the lower limbs. An electrocardiogram taken on Oct. 24, 1948 (Fig. 3), showed that right axis deviation still persisted.

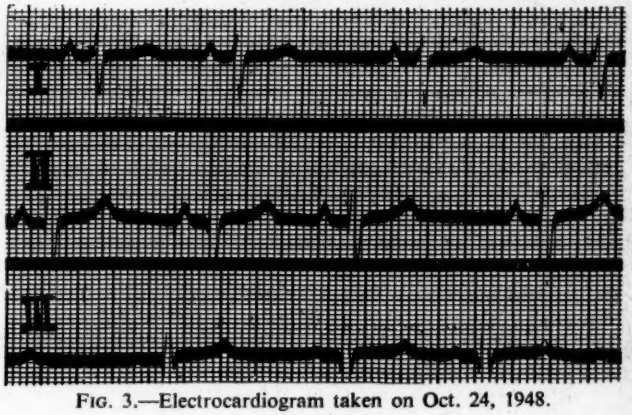

FIG. 3.—Electrocardiogram taken on Oct. 24, 1948.

Discussion

In published series (Abbott, 1928; Bramwell, 1947) the ductus was patent in only about 10% of cases of aortic coarctation of the adult type. The double lesion is therefore very rare. In our case the early appearance of a well-developed collateral circulation indicated a severe degree of coarctation, and the ultimate prognosis without operation was regarded as poor. In this connexion the literature shows a mortality rate of about 50% before the age of 30 and about 70% before 40. The presence of a patent ductus presumably increases the risk.

In cases of aortic coarctation the electrocardiogram usually shows a left axis deviation; the right axis deviation seen in our case is therefore noteworthy. Gilchrist (1947) has suggested that the explanation of this finding lies in the presence of a patent ductus arteriosus opening distal to the coarctation. In these circumstances the blood is believed to flow from the pulmonary artery to the aorta, thus throwing an additional load on the right ventricle. Our case supports Gilchrist's theory, though the small calibre of the duct and the persistence of the right axis deviation eleven months after operation suggest that this is not the full explanation. In bringing the ends of the aorta together no attempt is made to secure eversion of the edges as practised by Gross, since it is felt that anatomical apposition of the coats gives a stronger union. Crafoord passes the sutures down to but not through the intima; it was felt, however, that this practice increases the risk of a dissecting aneurysm. The rate of blood flow in the aorta seems to be an ample safeguard against clot formation over the sutures, a belief confirmed by observations in dogs (Gross and Hufnagel, 1945).

We are indebted to Mr. D. W. Purser for his drawing.

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In *Whereas They Were Blind* Dr. R. M. Macphail describes the ophthalmic work of a medical missionary in India. In 1894 his father founded the Bamdah Mission Hospital in spite of the scepticism of colleagues and the timidity of Indians unused to the ways of European medicine. However, in 1947 over 8,000 patients were treated there and nearly 7,000 operations were performed. The pamphlet is handsomely illustrated and is obtainable for 1s. from the Foreign Mission Committee of the Church of Scotland, 121, George Street, Edinburgh.

STEROID METABOLISM AND FRONTAL LOBES

BY

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The 17-ketosteroids are end-products of steroid metabolism, their source being the adrenal cortex. The daily urinary 17-ketosteroid output is fairly constant—3.5–14.6 mg. in 24 hours for adult normal women and 9.4–20 mg. in 24 hours for adult normal men (Patterson, McPhee, and Greenwood, 1942). Hemphill, MacLeod, and Reiss (1942) investigated the 17-ketosteroid values before and after brain operations, in particular bilateral prefrontal leucotomy (lobotomy), in six cases, and found that after the third post-operative month the urinary 17-ketosteroid excretion rises, indicating an increased steroid metabolism. Commenting on their results, they advanced the theory that an interference with the nervous pathways between the frontal lobes and the hypothalamus may influence the anterior pituitary, which in its turn alters the pituitary adreno-gonadal functions.

The cerebral control of steroid metabolism is of clinical as well as physiological importance, and the above-quoted conclusions have been reinvestigated in 12 cases. All the patients were females at the period of sexual maturity, and all had undergone bilateral prefrontal leucotomy, performed with a rotating-blade leucotome of 25 mm. cutting diameter. The urinary 17-ketosteroid output was followed up fortnightly for three to four months, except in the case of one patient who, after leaving the hospital, was inaccessible for the repeated investigations. The pre-operative and 3–4-monthly post-operative values are tabulated below.

Case No.	17-Ketosteroids in mg./24 hours	
	Pre-operative	3–4 Months Post-operative
1	15·1	11·4
2	6·1	4·4
3	14·6	10·9
4	10·0	6·5
5	13·2	—
6	11·0	4·8
7	14·2	4·2
8	10·9	10·5
9	23·6	14·0
10	20·3	19·5
11	12·4	9·6
12	9·3	8·4

The absence of the post-operative value in Case 5 has been explained; Cases 9 and 10 show high pre-operative values, but as the sample was taken at random they are retained in the series. It can be seen that the 17-ketosteroid output taken three to four months post-operatively is lower than that taken pre-operatively, in contradistinction to Hemphill and MacLeod's findings.

Further examination of our figures shows that the standard error of the mean difference is 1.05 mg./24 hours and Student's t ratio 3.71. For 10 degrees of freedom this is significant at the 1% level; thus the odds are 99 to 1 against its arising by chance. In other words, statistical evidence suggests very strongly that after bilateral injury to the prefrontal lobes the 17-ketosterone excretion is likely to diminish.

The hypothesis of other workers—namely, that the prefrontal lobes influence steroid metabolism—thus seems to be confirmed, but the direction of quantitative alterations is found to be contradictory. While no concrete explanation can be offered for these differences, attention should be drawn to the fact that the technique of leucotomy (lobotomy) varies from hospital to hospital, and the extent and localization of the operative incision at various levels may be responsible for the difference in findings. Furthermore, Hemphill and his collaborators' reported cases were males, whereas the case material just presented consisted entirely of females.

Reports on frontal-lobe injuries and on lobotomies emphasize a frequently increased sensuality. In the above-reported case material three patients showed increased sensuality but no corresponding increase in the 17-ketosteroid excretion could be observed—a possible indication that the increased sensuality is not of neuro-hormonal genesis. In other words, the 17-ketosteroid values seem to be independent of the patients' psychosexual state.

To ascertain whether patients with frontal-lobe injury respond to stimulation in the same manner as "normals," 17-ketosteroid values have been studied on patients who had undergone leucotomy and on patients who suffer from a mild neurosis. These patients were stimulated by 8 gr. (0.53 g.) of pituitary whole gland in 24 hours, by 6 mg. of intramuscular "prostigmin" in 24 hours, and finally by the administration of an erythema dose of ultra-violet light on the day the urinary 17-ketosteroids were collected. These experiments are still incomplete and numerically do not lend themselves to statistical examination, but the main tendencies of the results so far are as follows:

Administration of pituitary whole gland raises the 17-ketosteroid excretion, but administration of the prostigmin results in lowered 17-ketosteroid excretion. These findings might confirm a cortico-pituitary control of the 17-ketosteroid excretion rather than an influence through autonomic mechanisms. On administration of an erythema dose of ultra-violet light the 17-ketosteroid excretion increases, as was reported by Myerson and Neustadt (1939). No differences in responses were found between operated and non-operated cases.

I wish to thank Dr. W. T. Griffith and Mr. J. P. S. Robertson for their collaboration and help.

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Medical Memoranda

Haematoma of the Rectus Abdominis Muscle

Haematoma of the rectus abdominis muscle, especially the variety in which trauma is an inconspicuous factor and which is referred to as spontaneous to distinguish it from the traumatic variety, is very uncommon but of considerable clinical interest because it simulates very closely an acute intraperitoneal lesion.

CASE REPORT

A widow aged 71 was admitted to hospital on Aug. 3, 1947, complaining of severe abdominal pain of ten hours' duration. There was sudden onset of "tearing" pain in the right lower abdomen. The pain was continuous, aggravated by movement, and became steadily worse up to the time of admission. She vomited twice soon after the onset of pain. The bowels were opened before the attack and flatus had passed after the attack came on. Micturition was normal. There was a previous history of chronic bronchitis.

On examination the temperature was 99.2° F. (37.3° C.), pulse rate 120 and of poor quality, and respiration normal but somewhat laboured. The facies was pale and anxious, and the tongue moist and clean. The general appearance was one of moderate shock. Inspection revealed an ovoid swelling of the right lower abdomen. Abdominal respiratory movements were limited. The shoulder-raising

test was too painful to carry out properly. Palpation confirmed that the swelling extended from the symphysis to the umbilicus, and from the midline to the right as far as the linea semilunaris. The shape was oval, with the large diameter in the vertical axis. The swelling was smooth, firm, and tense, without impulse, extremely tender, and did not move with respiration. Percussion of the swelling gave a dull note. Rectal and vaginal examinations and urinalysis were negative.

The case resembled an acute surgical abdomen, and torsion of an ovarian cyst or torsion of the omentum was a possible diagnosis. As mentioned before, the shoulder-raising test was too painful to carry out and no deduction was made whether the swelling was in the abdominal wall or was intraperitoneal, but it seemed more superficial than would have been expected of an intraperitoneal lesion. However, operation was decided upon mainly because a serious intraperitoneal lesion could not be discounted.

Operation.—A right sub-umbilical paramedian incision over the swelling revealed a bulging and dusky-coloured rectus sheath. Dark, tarry blood clot exuded immediately the sheath was incised. A clot the size of a large grape-fruit was removed from in front of and behind a longitudinal split in the rectus muscle which extended from umbilicus to symphysis. There was considerable bleeding welling up from behind the rectus muscle in the region of the deep epigastric vessels, and this was only partially controlled by underrunning sutures, so that packing was necessary. The wound was closed on either side of the pack.

The pack controlled the bleeding well and was removed after 36 hours. A full course of penicillin was administered. The wound healed satisfactorily and the patient was discharged 21 days later. The follow-up revealed no obvious abnormality of the rectus muscle, which functioned very well.

DISCUSSION

That trauma in some degree or other is the exciting factor in all cases appears certain. But where this traumatic factor is slight—e.g., coughing (the factor in this case)—then there will be a predisposing factor, and the main ones seem to be (1) senility, with its degenerative changes in the walls of blood vessels; (2) debilitating illness, with its degenerative changes in muscle; and (3) pregnancy, with its effect of stretching the muscle fibres of the rectus abdominis and the deep epigastric blood vessels.

Correct diagnosis is seldom made, the most popular one being torsion of an ovarian cyst. Diagnostic points are a history of paroxysm of coughing followed by pain, with the early appearance of a mass which may steadily increase in size and which becomes more prominent and fixed on raising the shoulders. Operative treatment is usually undertaken because of the doubt in diagnosis, but where a definite diagnosis of haematoma of rectus muscle is made then there is the choice of conservative treatment. If the haemorrhage is already considerable or is progressing operation should be undertaken; Teske (1946) gives an overall mortality of 4%, and Thomas (1945) states that there is a 13% mortality rate in the obstetric group.

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A Case of Melaena Complicating Congenital Pyloric Stenosis

The following case of congenital hypertrophic pyloric stenosis is worthy of record on account of an unusual complication—melaena—occurring after operation.

CASE REPORT

A male infant aged 6 weeks, an only child, was admitted to the Royal Salop Infirmary on July 16, 1947. He had had projectile vomiting for over a week. He had been breast-fed, but his mother had given him complementary feeds of half-cream milk food after each feed for a few days. The weight had risen from 7 lb. 15 oz. (3.6 kg.) to 9 lb. 6 oz. (4.25 kg.) before the onset of vomiting, but had fallen to 7 lb. 4 oz. (3.29 kg.) on admission.

Congenital pyloric stenosis was diagnosed and operation was decided upon (July 21). The stomach was first washed out, and then under local analgesia a Rammstedt's operation was performed. There was a well-marked pyloric tumour. In separating the circular muscle fibres the duodenal mucosa was inadvertently opened and was sutured with fine catgut. In view of this perforation an intravenous saline drip was set up and feeding by mouth withheld until July 23, when half-strength half-cream milk food was given, the drip being discontinued on July 24. Apart from two small vomits he made good progress until Aug. 1, when his weight was 8 lb. 3½ oz. (3.73 kg.). He then started vomiting bile-stained material, and this lasted two days, being relieved after gastric lavage and rectal saline. Feeding by mouth was resumed.

A temporary improvement occurred, but on Aug. 5 vomiting recommenced and the stools were relaxed. There had been no pyrexia throughout, and no signs of peritonitis. On Aug. 6 the stomach was washed out and rectal saline given. A course of phthalylsulphathiazole, one tablet four-hourly, was started. Next day he was given glucose feeds. A "dark brown" stool was reported. His weight was 7 lb. 8 oz. (3.4 kg.).

On Aug. 8 (the 18th day) the baby was collapsed, pale, and generally oedematous. A plasma transfusion was started. Soon afterwards a large melaena stool was passed. The haemoglobin was 30%. Blood was substituted for the plasma, and about 450 ml. run in slowly. Next day a remarkable improvement had occurred and the oedema had disappeared. The haemoglobin was 92%. Phthalylsulphathiazole was discontinued. After several dark stools the motions had now become a normal colour. Feeding was resumed with half-cream milk food. No further vomiting occurred. Apart from one melaena stool on Aug. 10 the motions remained normal. Unfortunately it was not possible to estimate the prothrombin index.

Further convalescence was uninterrupted, and the baby was discharged on Aug. 26 weighing 8 lb. 5 oz. (3.77 kg.). When seen again on Oct. 7, as an out-patient, his weight was 13 lb. 14 oz. (6.29 kg.) and his mother stated that he had remained well.

DISCUSSION

I have found only a few references to bleeding into the bowel in cases of pyloric stenosis. Meader (1936), quoting a case in which "occult blood" had been found in the stools on the seventh day—gradually decreasing after a few days—commented: "Now it is not unusual for these patients to vomit fresh blood within 24 hours following operation, or for some evidence of blood to appear in the first or second stool, but in our experience this phenomenon has not occurred as late as in this instance."

In my case the bleeding was severe, occurring on the 18th day, and was preceded by gastro-enteritis. It was presumably due to ulcer. Infection was probably an aetiological factor. Possibly trauma, particularly as the duodenal mucosa was punctured at operation and subsequently sutured, determined the location of the ulcer.

If infection and trauma are regarded as aetiological factors in peptic ulcer (Illingworth and Dick, 1941) it is surprising that this complication is not more common in pyloric stenosis, since infections of various kinds are not infrequent after operation and the mucous membrane is widely exposed after incising the seromuscular layers.

The importance of breast-feeding in pyloric stenosis in relation to prognosis is well established (Herzfeld and Wallace, 1935; Thompson and Gaisford, 1935; Tallerman, 1938; Levi, 1941; Williams, 1942). Levi (1941) reported a consecutive series of 100 breast-fed babies who underwent a Rammstedt's operation without a death, and contrasted this with a series of 46 babies who were bottle-fed, of whom five died—all from gastro-enteritis. Bottle-fed babies present greater risk of cross-infection owing to their longer stay in hospital; they are less well nourished and are more liable to suffer from dietetic disorders (Williams, 1942).

It is probably significant that my case was artificially fed immediately before and after operation.

I wish to thank Dr. A. D. Rope and Mr. A. D. Haydon, under whose care this case was admitted, for the opportunity of treating it.

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Reviews

SURGICAL ENCYCLOPAEDIA

British Surgical Practice. Volumes 1 and 2. Under the general Editorship of Sir Ernest Rock Carling, F.R.C.S., F.R.C.P., and J. Paterson Ross, M.S., F.R.C.S. In 8 volumes (with Index volume). (Pp. 487 and 540; illustrated. £3 per volume. Index £1, carriage and packing extra.) London: Butterworth and Co. 1948.

The production of a work making any pretence at being encyclopaedic when considering the whole range of surgical practice is indeed a formidable task, but it is no less than this that Messrs. Butterworth and Co. are doing in publishing *British Surgical Practice* as a companion to their *British Encyclopaedia of Medical Practice.* The editors of such a work have not only to decide upon its general form and the proportional allocation of space for each subject, but, what perhaps is more important, upon the authors who are to participate in writing the sections. It is not always that the extreme specialist is the best author of an article on his subject; often his outlook will be rather too narrow to meet the needs of a book of this character. We therefore congratulate the editors in chief, Sir Ernest Rock Carling and Professor Paterson Ross (assisted by more than 30 consultant and associate editors) upon their choice and decision in all these matters.

The aim of the work is described in the introduction: "There are many surgeons who have no easy access to libraries, works of reference, or centres of teaching and research, and it is for them especially that this work is intended. While they may have no intention of attempting the more recondite operations of the specialist, they should know what can be accomplished by the expert working with his team in optimal conditions. . . . The work is not written for the expert, though we believe it contains contributions which he cannot afford to ignore." From our perusal of the volume now issued we agree with the authors that "the work as it stands is a reliable guide to sound practice."

The first two volumes cover only the first two letters of the alphabet, but the whole is to be completed in eight volumes, with a separate index. It is rather surprising to find that so much of surgery falls under the headings A and B, but undoubtedly this is due to the use of the earliest alphabetical synonym for any condition—for example, virilism under the heading "Adrenal," sympathetic surgery under "Autonomic System," and so on. The books are particularly well produced, printed on a high-quality paper (very costly in these days), and contain an abundance of excellent, useful illustrations, including some in colour. The reproduction of the skiagrams—always a good test of paper and printing—is very good. There is an attractive binding which fits the volumes for a proud place on the library shelf. The price of £3 a volume may at first seem rather high, but examining the book will soon convince the prospective purchaser that he is getting good value for his money.

NORMAN C. LAKE.

THYROTOXICOSIS

The Clinical Picture of Thyrotoxicosis. By Peter McEwan, M.A., M.B., Ch.B., F.R.C.S.Ed. (Pp. 127; illustrated. 15s.) Edinburgh and London: Oliver and Boyd. 1948.

Much has been written on thyrotoxicosis by both physicians and surgeons, by the former because of the diagnostic problems involved, and by the latter because surgical treatment has predominated. Mr. McEwan's book comes at a time when treatment with thiouracil challenges surgery, but, as the author remarks, opinion is in a state of unstable equilibrium. The book is largely an account of his own considerable experience without any attempt to review the literature, though the few references made are in generous terms.

He describes the main symptoms one by one in separate brief chapters, and also certain rarer effects of toxic goitre which are of interest but should not generally influence the practitioner too much in his diagnosis of the condition. Mr. McEwan thinks the condition is often missed, and no doubt he is right. Sometimes it is because the goitre is very small, though perhaps few will agree with his assertion that toxic goitre is not infrequent without any actual increase in the size or weight of the gland. Sometimes the mistake is in the other direction; for although all goitres are potentially toxic, as he points out, all goitres are not causing the symptoms which accompany them. In this connexion he briefly discusses neurosis in goitrous women. Most will agree with his views on basal-metabolism estimation and many other aspects of the subject, but it seems unfortunate that the author did not have more collaboration from a medical colleague for the more strictly medical aspects of toxic goitre, especially in the field of cardiology, despite his objection that patients are apt to be upset by a succession of doctors. However, even this objection is likely to disappear with thiouracil therapy, and in a chapter on treatment Mr. McEwan shows the breadth of his views by a very fair assessment of the value of this drug. This is a most readable book, largely because it is a simple record of the author's own experience. Although it comes at a time when views on treatment are changing, it will give the practitioner a clear clinical picture of thyrotoxicosis.

HAROLD COOKSON.

FIRST RECORD OF DISSEMINATED SCLEROSIS

The Case of Augustus D'Esté. By Douglas Firth, M.A., M.D., F.R.C.P. (Pp. 58. 6s.) Cambridge: The University Press. 1948.

A patient's account of his own symptoms and sensations, and of his reactions to treatment, is always a document of some interest, unless the writer happens to be a hypochondriac. The interest is enhanced when the author is an important personage, and is still further increased when the disease which he describes is one previously unknown to medical science.

Augustus D'Esté, the illegitimate grandson of George III, suffered from disseminated sclerosis for 28 years, and the manuscript diary in which he recorded his sensations came to light during a waste-paper drive in 1940. Augustus was born in 1794. His father was Prince Augustus, the sixth son of George III; his mother was Lady Augusta Murray (Lady D'Ameland). Some of the letters of this over-indulgent mother to her son at Harrow have been preserved, and those, together with his own record of subsequent life in the Army, reveal the psychological traumata of his childhood and adolescence which may have played a part in the aetiology of the disease which wrecked his adult life. His attempts to cope with the affliction from 1825, when he first complained of dimness of vision, until 1848, when he died after years of helpless invalidism, are clearly and faithfully recorded. They include visits to Ramsgate, Bath, Pyrmont, and other health resorts, the prescriptions of many physicians, and the description of this vain quest for health is accompanied by an account of the symptoms which would be recognized to-day as those of disseminated sclerosis. The disease was described by Sir Robert Carswell, of University College, London, in 1836, and was separated from the medley of spinal paraplegias by Charcot in 1868. Nevertheless Sir Augustus D'Esté was the first to describe the disease, and it was certainly worth while to celebrate the centenary of his death by publishing an account of his life and writings. The task was ably undertaken by the late Dr. Douglas Firth, whose sudden death unfortunately preceded the appearance of this charming and useful little contribution to medical history.

DOUGLAS GUTHRIE.

FEVERS FOR STUDENTS

Essentials of Fevers. By Gerald E. Breen, M.D., B.Ch., D.P.H., D.O.M.S. Second edition. (Pp. 351; illustrated. 15s.) Edinburgh: E. and S. Livingstone. 1948.

This new edition of Dr. Breen's book is disappointing. It is true that it contains a description of the "essential" signs and symptoms of the common infectious diseases, but it can give the student or nurse who is new to the subject very little guidance in the handling of an individual case. This is very noticeable in the section on cerebrospinal fever, for example, where the account of the symptomatology is satisfactory; but the author does not emphasize the concept of meningococcal infection, and although he discusses the close resemblance

between the clinical picture of all forms of meningitis he does not describe the variations in therapy which different aetiological agents require. As a result the inexperienced person brought face to face with a case of meningitis is given little help in its immediate management. Again, in discussing the treatment of enteric fever, he states that "very good results, however, have been reported from penicillin coupled with the sulphonamides" and that "streptomycin promises very well." Apart altogether from any discussion of the efficacy of such methods of treatment, which the author might argue was outside the scope of the book, surely it is essential to be precise, especially with the former, about dosage and spacing of treatment. Dr. Breen disarms us in his introduction when he comments on previous criticism that the book does not contain enough for the student by suggesting that there is enough theory to meet his needs, yet it is not simply a lack of theory but a dearth of practical advice which disappoints. We can sympathize with him in his feeling that colour photographs can be misleading, but his own colour representations are not free from the same fauits.

THOMAS ANDERSON.

A PIONEER

Truby King the Man. By Mary King. (Pp. 355 ; illus. 18s.) London : George Allen and Unwin. 1948.

A biography of Sir Frederic Truby King by his adopted daughter, Mary King, is welcome. In this book she describes his early life in New Zealand, his medical studies in Edinburgh, and his return to his native country. There he first of all completely reorganized the work of a mental hospital and in doing so became interested in farming and the rearing of domestic animals. His health was never too good in those early days, and he and his devoted wife went on special leave to Japan. He became especially interested there in the widespread practice of breast feeding—a contrast with what was happening in other parts of the world, where rearing on the bottle was becoming more and more popular. Returning to New Zealand, he began his campaign to promote natural feeding. The chapter describing this attempts to build a bridge between Truby King's two main interests, but the statement that he had observed that "a very large proportion of the mental patients under his care had been bottle fed" is really too naive.

The development of the educational system of "mothercraft" continued, mainly through specially trained nurses, and the results in New Zealand are now well known. Missionary work in London was less successful, and Miss King presents the controversial aspects of Truby King's views on bottle-feeding formulas as if he must have been right and almost every other paediatrician in the English-speaking world thoroughly wrong. However, this attitude does not loom large enough to spoil the book. What Truby King taught on managing the infant, on prenatal care, and on the supreme importance of breast feeding was of fundamental and lasting value. How he did this, with the constant help of his wife, though harassed by ill-health and continual financial anxiety, is a good story and it has been well told.

ALAN MONCRIEFF.

Bell's *Textbook of Pathology* (sixth edition; Henry Kimpton; 50s.) has an established reputation. One of its merits is its manageable size in spite of a remarkable amount of factual information being packed between its covers by the liberal use of the short simple sentence and full-stop. There is little discussion or speculation on debatable subjects and, what is rather more important, no serious or sustained attempt to correlate abnormal function with abnormal structure, or clinical signs and symptoms with pathological changes. These criticisms apply to the scope of the book; as a reliable guide to the hard facts of morbid anatomy and histology we can heartily recommend it. The illustrations, apart from some of the drawings, are of excellent quality and well chosen, and a special feature is the list of selected references accompanying each chapter. Most British pathologists would not agree that "most of the severe endemics of streptococcal sore throat have been shown to be due to milk-borne infection, the milk being contaminated from streptococcal mastitis in the dairy cows" (p. 171), and acute yellow atrophy of the liver can hardly be described as a "form of fatty liver" (p. 100).

BOOKS RECEIVED

[*Review is not precluded by notice here of books recently received*]

La Dénutrition. By M. Lamy and others. (Pp. 407. 1,150 francs.) Paris: G. Doin. 1948.

An account of the pathology, symptomatology, and treatment of malnutrition.

Molecular Architecture and the Processes of Life. By L. Pauling, B.S., M.A., Ph.D., D.Sc. (Pp. 13. 1s. 6d.) Nottingham: University. 1948.

The Sir Jesse Boot Foundation lecture for 1948.

Die Hypertrophie und das Carcinom der Prostata. By T. Hryntschak. Vol. 4. (Pp. 125. Sch. 35.) Vienna: Wilhelm Maudrich. 1948.

A practical manual giving clinical and operative details.

Lehrbuch der Spirometrischen Analytik und Diagnostik. By R. Exner. (Pp. 308. Sch. 80.) Vienna: Wilhelm Maudrich 1948.

Investigations into the air capacity of the lungs in various diseases.

La Streptomycine. Étude expérimentale et therapeutique. By A. Abaza. (Pp. 94. 220 francs.) Paris: G. Doin. 1948.

A study of the pharmacology and the therapeutic uses of streptomycin.

A Textbook of Gynaecology. By W. Shaw, M.D., F.R.C.S., F.R.C.O.G. 5th ed. (Pp. 660. 25s.) London: J. and A. Churchill. 1948.

This well-known textbook for students and practitioners has been "drastically revised."

Streptomycin und Tuberkulose. By G. Fanconi, W. Löffler, and others. (Pp. 357. 30 Swiss francs.) Basle: Benno Schwabe. 1948.

Papers on the treatment of meningeal, miliary, and pulmonary tuberculosis with streptomycin.

Les Varices de la Grossesse. By R. Tournay and P. Wallois. (Pp. 139. 250 francs.) Paris: L'Expansion Scientifique. 1948.

A manual on the treatment of varicose veins in pregnant women.

Éléments de Médecine Aéronautique. By R. Grandpierre and others. (Pp. 502. 1,200 francs.) Paris: L'Expansion Scientifique. 1948.

Includes sections on the prevention of disorders due to flying and on transporting the sick.

Methodenlehre der Therapeutisch-Klinischen Forschung. By P. Martini. (Pp. 198. M. 18.) Berlin: Springer-Verlag. 1948.

A general discussion of research methods in therapeutics.

Crystalline Enzymes. By J. H. Northrop and others. 2nd ed. (Pp. 352. 42s.) London: Geoffrey Cumberlege. 1948.

Describes the chemistry and isolation of proteolytic enzymes and the bacteriophage.

Hemostatic Agents. By W. H. Seegers, M.S., Ph.D., and E. A. Sharp, M.D., Sc.D. (Pp. 131. 25s.) Oxford: Blackwell Scientific Publications. 1948.

An account of blood coagulance with particular reference to thrombin, fibrinogen, and absorbable cellulose.

Essentials of Public Health. By W. P. Shepard, B.S., M.D., M.A., and others. (Pp. 600. 30s.) London: Lippincott. 1948.

An outline of the subject intended for students and general practitioners.

Deep Massage and Manipulation Illustrated. By J. Cyriax, M.D., B.Ch. 3rd ed. (Pp. 278. 17s. 6d.) London: Hamish Hamilton Medical Books. 1948.

A profusely illustrated manual for physiotherapists.

Die Funktionelle Organisation des Vegetativen Nervensystems. By W. R. Hess. (Pp. 226. 18.50 Swiss francs.) Basle: Benno Schwabe. 1948.

A monograph on the physiology of the autonomic nervous system with discussion of experimental work.

BRITISH MEDICAL JOURNAL
LONDON
SATURDAY DECEMBER 18 1948

INFECTIVE EAR DISEASE

The attention and interest devoted to any cause of ill-health depend upon the extent to which it interferes with every-day life. The patient suffering from a disorder that is not incapacitating may neglect it because of the time that would be taken up in having it attended to. On the other hand, the medical man may not always find it easy to give the time and attention to such disorders that he would wish. Some of these conditions of ill-health, though not in themselves mortal or even incapacitating, may, if ignored or inadequately cared for, have serious consequences. Among these is infective ear disease.

It has for a long time been realized by insurance companies and by employers who enter into permanent contracts with those whom they employ that infective ear disease is a potential cause of invalidism, and in consequence applicants with such disease are often rejected as unfit for insurance or employment. Before the recent war many of the larger educational authorities set up special clinics for the investigation and treatment of infective ear disease in school-children, and it was the general experience that regular, often daily, treatment under specialist supervision resulted in a temporary cure in almost three-quarters of the cases. The problem of regular visits to the clinic was solved by making it part of the school attendance, and the clinics were held during school hours. The children were seen daily by nurses with special otological training and could be seen weekly, or more often, by an otologist.

In wartime infective ear disease proved to be a serious cause of wastage of manpower in the armed Forces, despite the rejection owing to ear disease of 2% of all recruits examined by the National Service Boards. In one survey in England over 6% of the patients in four large military hospitals were there because of ear disease. Regular daily treatment by a specialist or a trained orderly was often possible in the Forces, and the value of this daily attention in clearing up the condition was proved again and again. In the Royal Air Force Banham personally treated cases of infective ear disease daily and found that 80% were soon cleared up.[1]

It seems certain that regular daily treatment is the best method of clearing up infected ears. In school-children and in the Services conditions are usually favourable for regular daily treatment even if it is extended over a long period. If nurses or orderlies can be trained to use a head-mirror or headlight, thus enabling them to treat the depths of the ear under direct vision, the value of the treatment is increased. In all these clinics otological supervision has been necessary, though a weekly or bi-weekly visit by the otologist may suffice. In civil life, however, daily visits to a clinic over a period of weeks would be impracticable for most adults, and very few hospitals have the trained staff to undertake such work on anything but a small scale. In order to explore the possibility of meeting the needs of the adult civilian population a pilot scheme was set up in a group of factories in the Birmingham area some three years ago by the Medical Research Council on the recommendation of their Committee to Advise on Medical and Surgical Problems of Diseases of the Ear. The help and co-operation were secured of the Industrial Health Research Board, a group of industrial medical officers, and the management, staff and workers of the factories concerned. Mr. Colin Johnston was appointed to establish and develop this factory otological scheme, which, it was hoped, would indicate the size of the problem and whether it could be adequately treated within the existing framework of the medical departments of the factories. His report on the first eighteen months' work is presented in an abridged form in this issue of the *Journal*, and it will be of great interest not only to otologists and to all workers in the fields of social and industrial medicine but also to the general practitioner, who better than anyone else should know the extent of the problem.

The incidence of past or present ear disease in the random sample of factory workers is surprisingly high. Johnston found active disease in 5.9% and evidence of former disease in 14.6% of 1,900 workers selected at random. The Sickness Survey found that in reply to questioning by trained interviewers 1.66% of those interviewed admitted to ear disease, though, as Johnston found in his survey, a large proportion of sufferers from infective ear disease are either unaware of, or unwilling to disclose, the fact. It seems likely from a study of all the available figures that the real incidence of infective ear disease is somewhere in the region of 5% of the population ; in round figures based on the latest population estimate that is 2,500,000 people. This indicates how much an organized scheme for treatment is needed.

Johnston has shown that, given a certain minimum of skilled otological supervision, infective ear disease in factory employees can be at least temporarily cured in over 80% of the cases. The very nature of the disease makes relapse inevitable in some, and this is an added reason for regular treatment being readily available. Furthermore, these results, which are comparable with those already mentioned, have been obtained without any expansion of the medical and nursing services in the factories apart from a weekly visit from an otologist. Perhaps the most important finding of all is that daily treatment can be continued over many weeks without time off from work. So far as the workers are concerned participation has been entirely voluntary and both management and workers have realized the value of the results obtained and are keen to continue with the scheme. It is clear that the management of infective ear disease along these lines can be extended both in hospital, school clinic, and factory medical department without adding unduly to the burden of work. In this way much can be done towards solving the problem of infective ear disease.

[1] *J. Laryng.*, 1944, **59**, 117.

COTTON-DUST DISEASE

As long ago as 1818 Jackson[1] noticed that those who worked in the cotton industry, particularly cardroom workers, suffered from a characteristic respiratory disease. The U.S. Public Health Service has recently brought the whole subject up to date with the publication[2] of a full review of the literature. The authors of this work consider that there are four diseases for which cotton dust is responsible—mill fever, byssinosis, weaver's cough, and an illness caused by the endotoxin of *Aerobacter cloacae*. It seems more likely, however, that there are only two diseases, perhaps only one: mill fever is almost certainly the early stage of byssinosis, and the remaining two conditions are very similar to other diseases caused by mouldy organic matter such as grain, flax, hemp, jute, and bagasse.

There are 36 recorded surveys of the health of cotton workers in many different countries, but the work that has been done in this country is certainly much more complete than that in any other. In 1862 Greenhow[3] described the diseases of cotton workers in a report to the Privy Council, and in 1932 the Home Office[4] issued the *Report of the Departmental Committee on Dust in Cardrooms in the Cotton Industry*. This report summarized all existing information about conditions in the mills, types of machinery in use, and the nature of the cotton dust. It included an account of the clinical and radiological examination of a group of workers at Ashton-under-Lyne who suffered from respiratory disease and the necropsy findings in a few fatal cases. In 1936 Prausnitz[5] reported to the Medical Research Council on respiratory dust disease in workers in the cotton industry, and last year Gill[6] described the process of carding and the symptomatology of the disease. Cotton is obtained chiefly from Egypt, America, and India, and arrives at the mill in tightly compressed bales which also contain much foreign material such as particles of leaf and seed coat, cotton hairs, fragments of mould, and fine sand. During the first process of cleaning the tightly compressed cotton is pulled off in layers and hand-fed into a machine called the "hopper bale opener." It then passes into the blowing-room, where a series of machines free it from most of the impurities. All these machines are enclosed in dust-proof covers, but the workers who clean them must protect themselves against dust by wearing suitable clothing and respirators. The clean cotton coming out of the blowing-room passes to the carding engines, and it is principally the strippers and grinders in charge of these machines who suffer from the disease. Usually each stripper and grinder is in charge of sixteen carding engines; each engine is cleaned four times daily by a vacuum process, and twice weekly it is brush stripped. The evidence is very strong that the carding process liberates the injurious dust which causes byssinosis and that the atmosphere is most dangerous in the immediate vicinity of the carding engine.

The usual history is that after working for several years in the dusty atmosphere the man has sneezing attacks and develops a dry and irritating cough with a tight feeling in the chest and restricted intake of breath. At first the trouble is temporary, and symptoms will disappear after a week-end's rest. But they return, and the disease in consequence has been called "Monday morning fever," "mill fever," and "factory fever." The worker is not incapacitated at this stage, and his breathing will become normal if he is taken out of the dusty atmosphere. After exposure to the dust for ten or more years, however, the worker begins to complain of more severe symptoms such as asthma and bronchitis; the breathing is shallow, and there is a small amount of sticky mucoid phlegm. He loses weight and develops a sallow complexion. Absences from work become more frequent, but improvement can still be brought about by transferring the worker to an atmosphere free from dust. In the last stage emphysema is severe, and there is great shortness of breath. Cough is troublesome, with mucoid or mucopurulent expectoration. When severely affected a man may stand with his hands pressed against his thighs to aid his breathing. The disease is incurable at this stage, and many of these workers die before the age of 50. The physical signs are those of chronic bronchitis and emphysema; the respiration is laboured, and the accessory muscles are brought more and more into use as the disease progresses. The thorax becomes barrel-shaped, and the patient tends to sit in a characteristic attitude with the body bent slightly forward, the legs widely spaced, and the hands placed on the knees. The vital capacity is greatly reduced, and the chest expansion may be less than 1 in. The radiographic appearances are similar to those of chronic bronchitis and emphysema, though the shadows radiating from the hilum are of greater density and indicate considerable fibrosis. Chronic bronchitis and emphysema are found at post-mortem examination, but there is no way of distinguishing the bronchitis of cardroom operatives from that which occurs in the general population. Dunn and Sheehan[4] have reported that dilatation of the right heart was frequent.

Weaver's cough was first described by Collis[7] in 1914, and Middleton[8] in 1926 confirmed that cotton weavers in Lancashire suffered from an acute bronchitis brought on by handling cotton fibre. This was an acute illness with fever, cough, and sputum; the residual symptoms might last for as long as two months. The moisture left in the warp was thought to be responsible for this disease because it encouraged an abundant growth of fungi during storage on the beams; when weaving began the workers breathed in a dust laden with conidia, spores, and fragments of mycelium. Neal and his colleagues[9] in the U.S.A. described an acute febrile illness with cough, dyspnoea, tightness of the chest, and more general symptoms among workers making mattresses from low-grade cotton and among workers in cotton mills and cotton-seed processing plants where there were high concentrations of stained cotton

[1] *Lond. med. phys. J.*, 1818, **39**, 464.
[2] *U.S. Public Health Bulletin*, No 297, 1947.
[3] *Report of the Medical Officer of the Privy Council*. Fourth Report, London, 1862.
[4] *Report of the Departmental Committee on Dust in Cardrooms in the Cotton Industry*, 1932, London. H.M.S.O.
[5] *Spec. Rep. Ser. med. Res. Coun., Lond.*, No. 212, 1936.
[6] *Brit. J. Industr. Med.*, 1947, **4**, 48.
[7] *Proc. R. Soc. Med.*, 1914, **8**, Epidem. Sect., 108.
[8] *J. Industr Hyg.*, 1926, **8**, 428.
[9] *J. Amer. med Ass.*, 1942, **119**, 1074.
[10] *British Medical Journal*, 1932, **2**, 1143.
[11] *Brit. J. Radiol.*, 1936, **9**, 172 and 354.
[12] *Acta med. scand.*, 1946, **125**, 191.
[13] *Schweiz. med Wschr.*, 1946, **76**, 988.
[14] Hunter, D., and Perry, K. M. A., *Brit. J. Industr. Med.*, 1946, **3**, 67.

dust. They thought the condition was caused by the endotoxin of a Gram-negative bacillus, *Aerobacter cloacae*. This condition and weaver's cough, however, have a close connexion with other diseases caused by contaminated organic vegetable materials such as "farmer's lung," described by Campbell[10] and Fawcett[11] in Cumberland, and "thresher's lung" by Törnell[12] in Sweden and Hoffman[13] in Switzerland. Bagasse disease[14] is also similar, and so is "broken wind" of horses. These may all belong to a single group with the same underlying pathology. It also cannot be denied that byssinosis may be an end-result.

REPRESENTATION OF CONSULTANTS AND SPECIALISTS

The difficulties inherent in the representation of the interests of consultants and specialists in the National Health Service are being resolved. There seemed at one time to be a risk of serious discord, with the different groups representing consultants pulling in different directions. On the one side was the B.M.A., erroneously held by some to represent the interests only of general practitioners but having a well-tried machinery of negotiation and an experienced Secretariat. On the other were the Colleges and Corporations, academic and examining institutions standing for most but not all consultants, with little or no experience of negotiation in what is called medical politics, and having no machinery for this purpose. The inauguration of the N.H.S. presented consultants and specialists, almost for the first time, with the problem of collective decision and action in matters concerning them generally, particularly in relation to terms and conditions of service and, more particularly now, to the recommendations of the Spens Report. Some held the view that the Consultants and Specialists Committee set up by the B.M.A. should handle these matters; others that they were the responsibility of the Colleges and the Corporations. In any tug-of-war between the two it was plain that something would come apart, and that most likely the real interests of consultants and specialists. An intraprofessional conflict would have been disastrous, and this was fortunately avoided by a decision of the various bodies to confer round a table.[1]

In July representatives of the Royal Colleges, the Royal Scottish Corporations, and the B.M.A. set up an Exploratory Committee under the chairmanship of Sir Lionel Whitby. This committee met again last week at the Royal College of Surgeons and agreed upon a statement which is published in this week's *Supplement*. "It is essential," the first item runs, "in the interests of the consultants that a joint committee of the bodies concerned should be established to speak for consultants with one voice"—the word consultants including specialists. The joint committee will have two secretaries, one appointed by the Colleges and the Corporations, and the other by the B.M.A. There will be 17 members on the committee, 6 appointed by the Consultants and Specialists Committee of the B.M.A. and 11 by the six Colleges and Corporations. On this committee both teaching and non-teaching consultants are to be represented. Provision is made for disagreement among the constituent bodies.

The task of the committee is to represent consultants and specialists in impending negotiations with the Government and later to consider what form of collaboration should be established for the future. The joint committee will have met by the time this issue is published. The choice of its chairman is awaited with interest, for upon his skill and force as a negotiator much will depend.

[1] *British Medical Journal*, 1948, **2**, 343.

VITAMIN D IN SARCOIDOSIS

In 1840, at the St. Louis Hospital in Paris, Emery[1] was treating lupus vulgaris with cod-liver oil in doses of one litre daily. It can readily be understood why such heroic dosage enjoyed only a brief popularity, but it is strange that a century elapsed before his method was translated into the terms of modern therapeutics. Almost simultaneously Charpy[2] in France and Dowling and Prosser Thomas[3] in this country proved that large doses of vitamin D would cure lupus vulgaris in a high proportion of cases. Their results have been confirmed throughout the world, and, though the frequency of toxic reactions has been responsible for a note of caution,[4] it is likely that the method has already become the standard treatment for this disfiguring and troublesome complaint.

It was obvious that the use of vitamin D would rapidly be extended to other forms of tuberculosis and to that curious condition Boeck's sarcoid (lupus pernio). With the passage of time more and more clinicians are willing to subscribe to Schaumann's theory, published in many papers during the past 20 years, that sarcoidosis is a form of tuberculosis. The evidence in favour of this hypothesis has recently been reviewed once again by Freudenthal[5]: pulmonary tuberculosis is the commonest cause of death in sarcoidosis; the metamorphosis of cutaneous sarcoid into lupus vulgaris has been repeatedly observed; although *Myco. tuberculosis* is seldom obtainable from sarcoid lesions, isolation has been successful in 26 authenticated cases; and, finally, it has been found that serum from patients with sarcoidosis neutralizes tuberculin. The recently devised Kveim test—an intradermal reaction with sarcoid tissue—affects the argument but little, though Leider[6] considers it another point in favour of tuberculosis. Proof is still lacking, but there is little doubt that opinion now favours the tuberculosis hypothesis.

This view, together with the resistance of sarcoid to treatment, was adequate reason for the use of vitamin D in the disorder. Reports have hitherto been scanty but encouraging. Dowling, Gauvain, and Macrae[7] mention seven cases, of which six were improved. Curtis, Taylor, and Grekin[8] have treated five patients with doses of 200,000 to 900,000 i.u. of vitamin D_2 daily and have noted improvement in cutaneous, pulmonary, and digital lesions. It is of interest that in a discussion on their paper Pinkus reported the activation of indolent lesions with doses of 1,000 i.u. daily, though healing with fibrosis took place when the dose was increased. In this number of the *Journal* Dr. R. F. Robertson records an impressive result of vitamin D therapy in a woman with extensive lupus pernio, although only 100,000 i.u. daily for three weeks was given before toxic symptoms interrupted treatment. In his patient pulmonary symptoms were aggravated and the digital lesions changed little. It is worth recalling that pulmonary fibrosis, the sequel of healed sarcoid infiltrations in the lung, is responsible for the death of many of these unfortunate patients.

[1] Charpy, J., *Brit. J. Derm. Syph.*, 1948, **60**, 121.
[2] *Ann. Derm. Syph., Paris*, 1943, **3**, 331, 340.
[3] *Proc. R. Soc. Med.*, 1945, **39**, 96.
[4] Anning, S. T., Dawson, J., Dolby D. E., and Ingram, J. T., *Quart. J. Med.*, 1948, **17**, 203.
[5] *Brit. J. Tuberc.*, 1948, **42**, 11.
[6] *J. Invest. Derm.*, 1948, **10**, 177.
[7] *British Medical Journal*, 1948, **1**, 430.
[8] *J. Invest. Derm.*, 1947, **9**, 131.

It is difficult to believe that vitamin D could do anything but accelerate this change; nevertheless it is a notable therapeutic advance to be able to relieve the hideous disfigurement of lupus pernio.

PENICILLIN BY INHALATION

In the last few years penicillin aerosols have been extensively used in the treatment of chest disease, but it is still difficult to assess their value, and it is not yet certain that the best methods of administration have been found. Garthwaite and Barach[1] have recently described their results with this form of treatment. They use a nebulizer fitted with a rebreathing bag, the latter being immersed in hot water, and also containing half a glass of very hot water, so as to provide a warm, humidified aerosol. The nebulizer is fitted with a baffle to eliminate the larger droplets and is connected to an oxygen cylinder running at the rate of 8 to 12 litres a minute. A device enables the patient to prevent the penicillin solution from being nebulized except during inhalation. In the patient's home a car-tyre foot-pump has been used instead of the bulky oxygen cylinder. The apparatus is usually attached to a glass mouthpiece, but in ill patients or in children an oronasal mask is used. The authors have experimented with continuous inhalation, the nebulizer being kept filled by a drip feed and the aerosol delivered either into a mask or into an oxygen tent. Calcium penicillin was found less irritating than the sodium salt, but crystalline penicillin, either the potassium or the sodium salt, has proved to be better still.

Usually a dose of 50,000 units of penicillin is given dissolved in 1 ml. of physiological saline, and this is repeated three to five times a day. After each dose at least one, and preferably two, rinses of 0.5 ml. of physiological saline are added to the nebulizer and inhaled to avoid waste. If this is not done it has been found that 5 to 10% of the dose of crystalline penicillin and about 20% of the dose of calcium penicillin remain in the nebulizer. Preliminary results suggest that higher blood and sputum levels may be obtained by using hypertonic 3% saline as a diluent. Bryson and Grace[2] suggest that the penicillin should be dissolved in a detergent such as alkyldimethylbenzyl ammonium chloride, and put forward some evidence for their synergistic action *in vitro*. Similar claims have been made for another detergent, propylene glycol,[3] but so far the clinical value of detergents has not been conclusively proved; Garthwaite and Barach found them less effective than saline as diluents. In general two to three times as much penicillin had to be given by inhalation as by intramuscular injection to obtain comparable blood levels in healthy individuals, and it was more difficult to reach such levels in those with lung disease. The amount of penicillin in the sputum, however, averaged 461 units per ml. one to four hours after inhalation of 50,000 units, and there is no doubt that inhalation gives far higher sputum levels than does intramuscular injection.

Clinical results are difficult to assess. Garthwaite and Barach observed some improvement following 37 out of 55 courses given for bronchiectasis and 20 out of 24 given for chronic bronchitis. The results were seldom dramatic, and it was not easy to separate the effects of penicillin inhalation from those of postural drainage and other measures. Cure was claimed in four out of five cases of acute lung abscess, but only one of these had had no intramuscular penicillin. Although direct intrabronchial or intratracheal penicillin may prove of great value in lung abscess,[4] it seems unlikely that penicillin inhalation can be more than a minor aid to treatment in this condition.

Most workers have found that penicillin-sensitive organisms disappear from the sputum during a course of penicillin inhalations, but the patient is not always any better for the change and often the organisms reappear after treatment has stopped. No doubt penicillin by inhalation will continue to be used for chronic bronchitis and bronchiectasis mainly for lack of anything better. Careful attention to technique is important, but in most cases results are unlikely to be either impressive or permanent.

[1] *Amer. J. Med.*, 1947, **3**, 261.
[2] *New Engl. J. Med.*, 1947, **237**, 683.
[3] Prigal, S. J., McGavack, T. H., Speer, F. D., and Harris, R., *J. Amer. med. Ass.*, 1947, **134**, 932.
[4] Métras, H., and Lieutier, J., *Thorax*, 1947, **2**, 196.

ACUTE POLIOMYELITIS IN PREGNANCY

During the Colorado epidemic of poliomyelitis in the autumn of 1946 Taylor and Simmons[1] observed 25 cases occurring during pregnancy. They found that the incidence of the disease was twice as great in pregnant as in non-pregnant women of the same age group and thus confirmed the similar observation made at an earlier date by Setala[2] in Finland. Blackwell[3] recorded the case of a woman who without ill effect to herself nursed patients with poliomyelitis during an epidemic in 1946, but who one year later, when no longer working because she was pregnant, contracted the disease. It is difficult to reconcile this increased susceptibility during pregnancy, when the levels of oestrogen and progesterone in the blood are high, with the claim of Anderson,[4] based on experimental work on mice, that both of these hormones protect against the virus of poliomyelitis. Similarly the suggestion that chorionic gonadotrophin is protective[5] is at variance with the fact that the incidence of infantile paralysis is greater in the first three months of pregnancy than in the non-pregnant woman. Taylor and Simmons suggest it may be that in pregnancy the increased congestion and permeability of the upper respiratory and digestive tracts make it easier for the virus to gain entry.

Nineteen of the 25 cases reported by Taylor and Simmons occurred in the first six months of pregnancy. Among these there were no deaths, and only two patients had residual paralyses. Of the six patients who developed the disease in the last three months of pregnancy three died, and the surviving three had severe residual paralyses. These findings agree with previous experience. A study of 195 cases collected from the literature showed that the mortality among 110 women who developed the disease during the first six months of pregnancy was 7%—the same as that for non-pregnant women in the same age group—but in the 85 women who developed the disease in the last three months of pregnancy it was 27%. In the absence of any obvious reason for the greatly increased severity of the disease in the last months of pregnancy Taylor and Simmons suggest that it is related to the "chronic fatigue of advanced pregnancy." Russell[6] pointed out, and Hargreaves[7] has recently confirmed, that physical activity of any kind during the pre-paralytic stage increases the danger of severe paralysis. But there is no reason to believe that the induction of premature labour would lead to better results for the mother; nor indeed is there any advantage in inducing abortion when the disease arises in early pregnancy.

There are two other facts about poliomyelitis occurring during pregnancy which are worth noting. First, the degree of maternal spinal paralysis has no serious effect on labour. The uterine contractions proceed in normal

[1] *Amer. J. Obstet. Gynec.*, 1948, **56**, 143.
[2] *Ann. chir. gyn. fenn.*, 1947, **36**, 117.
[3] *Amer. J. Obstet. Gynec.*, 1948, **56**, 150.
[4] *Proceedings of the Rocky Mountain Conference on Infantile Paralysis*, 1946, p. 15.
[5] Weaver, H. M., and Steiner, G., *Amer. J. Obstet. Gynec.*, 1944, **47**, 495.
[6] *British Medical Journal*, 1947, **2**, 1023.
[7] Ibid., 1948, **2**, 1021.
[8] Daley, A., *Proc. R. Soc. Med.*, 1948, **41**, 53.

fashion, and lack of voluntary muscular effort does not contraindicate vaginal delivery; caesarean section has probably been employed more often than necessary. Secondly, no case of congenital poliomyelitis has been recorded; but any passive immunity transferred to the baby from the mother does not last long, since poliomyelitis has occurred as early as the eleventh day of extrauterine life.

It is now generally agreed that poliomyelitis is becoming more a disease of the adult population. In the first 10 months of 1947, 174 of the 908 cases notified in London[8] alone were in females over 15 years of age, but surprisingly few case histories of poliomyelitis in pregnancy have been recorded in this country. In any future outbreaks such cases deserve careful study and record if only to confirm the findings reported elsewhere.

POLIOMYELITIS VIRUS IN BLOOD

When Koprowski and his colleagues[1] reported the isolation of poliomyelitis virus from the blood of a human case they renewed the hopes of those who still considered that a systemic infection precedes the involvement of the central nervous system in this disease. The serum used was collected on the third day of illness from a patient with presumed poliomyelitis (non-paralytic). The conditions of the virus isolation were, however, unusual. Serum was injected intracerebrally into "dilute brown" agouti mice; after an interval of several days a healthy mouse was killed and a suspension of its brain inoculated into more mice. One mouse developed paralysis 22 days after inoculation with the second mouse-brain passage. The strain of virus appeared to be immunologically identical with the other true strains, Lansing, M.E.F.I., and Y.S.K., which after isolation from human patients in monkeys can grow in rodents by adaptation, and thereafter can still reproduce the disease in monkeys. Virus has been isolated from blood very rarely. Ward and his colleagues[2] were successful with only one of 111 specimens of blood. They endeavoured to concentrate the virus and used rhesus monkeys as experimental animals. The positive specimen was obtained about six hours from the onset of symptoms in a very mild non-paralytic case occurring during the height of an urban epidemic. Virus was found in a stool collected two days later. These workers also drew attention to the fact that the distribution of the lesions in the central nervous system does not correspond to that expected from indiscriminate spread of virus across blood vessels. The virus has been found occasionally in certain viscera—for instance, the spleen—and in the mesenteric lymph glands at necropsy. It is possible that there is active multiplication of virus in certain tissues and a spilling over into the blood stream.

The results of a recent investigation by Bodian[3] indicate that infection of the central nervous system takes place as early as the first rise of temperature in patients with the dromedary type of temperature curve. In the light of the evidence at present available the most probable route of entry of the virus is through the exposed ends of peripheral nerves and then along their axoplasm to the central nervous system. Bodian also concluded that the majority of the neurons were attacked at the same time and that at least in the early stages of the disease the spread of the virus in the grey matter does not occur by cell-body to cell-body extension but probably along axon connexions. If these latter hypotheses are correct they account for much of the difficulty and disappointment experienced with the serum prophylaxis and treatment of poliomyelitis.

1 *Publ. Hlth Rep., Wash.*, 1947, **62**, 1467.
2 *J. clin. Invest.*, 1946, **25**, 284.
3 *Bull. Johns Hopk. Hosp.*, 1948, **83**, 1.

MORE RESEARCH ON BAL

Interesting observations on BAL continue to be made. A surprising experiment was carried out by de Oreo[1] on four patients who were being treated for syphilis. He showed that the preliminary administration of BAL largely neutralized the curative action of "mapharside" in removing spirochaetes from moist syphilitic lesions. After having completed the demonstration he then cured the disease with penicillin. Lusky, Braun, and Woodard[2] have carried out a more important piece of research. They point out that among the many agents influencing the rate of induction of skin tumours in mice with 3,4-benzpyrene, certain hydrolysing chlor-compounds, bromobenzene, and unsaturated acids have been shown to delay tumour formation. Crabtree[3] has suggested that these inhibitors react with –SH groups and make them unavailable for normal cellular metabolism. Since in his opinion the initial phase in the production of skin tumours is the fixation of the carcinogen to the –SH groups of the cell, it occurred to Lusky and his colleagues that BAL might combine with the carcinogen and so delay tumour formation. This they have demonstrated successfully in an experiment with comparable groups of 55 mice. Seventeen weeks after the application of benzpyrene 82% of control mice had developed skin tumours, as compared with 58% of mice anointed with BAL in addition to benzpyrene. This is a further step in demonstrating the importance of –SH groups in tumour formation.

NUFFIELD COLLEGE OF SURGICAL SCIENCES

Lord Nuffield has once again combined wisdom with munificence in bestowing £250,000 on the Royal College of Surgeons for the purpose of building a residential college where young surgeons, particularly from overseas, may live while undertaking advanced study or research. It will be called the Nuffield College of Surgical Sciences and will be built on land adjoining the Royal College in Lincoln's Inn Fields. Lord Nuffield could hardly have chosen a more worthy object for his generosity than the promotion of collegiate life in a university city where it is conspicuously insufficient, and in particular for postgraduate medical students. Those living at the college will be within easy reach of teaching hospitals, museums, and other centres of learning, and will have unrivalled opportunities of meeting leading surgeons attending the Royal College and listening to their lectures and discussions as well as to those valuable suggestions informally mentioned over a cup of tea. The many visitors who have come from overseas testify to the leading position held by British surgery, and the College will complement the work of the recently endowed Sims Commonwealth Travelling Professorship in spreading the best British teaching throughout the world. Lord Webb-Johnson will have further opportunity for exercising his great administrative gifts in successfully speeding this project on its way.

The Council of the Royal College of Surgeons has conferred the honorary Fellowship of the College on Lord Nuffield, honorary medallist of the College, and on Professor J. R. Learmonth, surgeon to H.M. Household in Scotland and Regius Professor of Clinical Surgery and Professor of Surgery in the University of Edinburgh.

Sir Reginald Watson-Jones has been appointed Arthur Sims Commonwealth Travelling Professor for 1950.

1 *Arch. Derm. Syph., Chicago*, 1947, **56**, 695.
2 *Cancer Res.*, 1947, **7**, 667.
3 Ibid., 1945, **5**, 346.

THE END OF COMPULSORY VACCINATION

BY

C. KILLICK MILLARD, M.D., D.Sc.
M.O.H. for Leicester, 1901–35

The year 1948 will ever be memorable in the history of vaccination in this country as seeing the end of compulsory vaccination of infants, a measure which has been the subject of such acute and bitter controversy for so many years. Having regard to the great importance attached to universal vaccination of infants as our "first line of defence," and to the firm belief that only by compulsion could this be secured, it is rather surprising that the proposal to abolish compulsion did not arouse more opposition. In the event the opposition was almost negligible.

History of Compulsory Vaccination

Jenner's great discovery was made just at the end of the eighteenth century, and the practice of vaccination gradually came into favour in the early part of the nineteenth. In 1840 an Act was passed providing for free vaccination by public vaccinators, to be appointed for the purpose by Boards of Guardians, but this was only permissive.

It was in 1853 that vaccination of infants was first made compulsory. By an Act passed in that year every parent who refused or neglected to have his child vaccinated within three months of birth was made liable to a fine of 20s. and costs. Thus compulsion was in force (theoretically) for 95 years, but it was only really in operation for part of that time. The Act provided no machinery for enforcing the law, but this omission was remedied to some extent in 1861, when Boards of Guardians were empowered to appoint vaccination officers for the express purpose of instituting legal proceedings against defaulters. Six years later, in 1867, a further Act was passed consolidating previous Acts and making the penal clauses more stringent. In the debate on the third reading Sir Thomas Chambers, in opposing it, made this prophetic utterance: "I am persuaded that when the Bill is passed an agitation will commence which will never cease until the Act is repealed." It has taken 81 years for the prophecy to be fulfilled.

Opposition to Compulsion

The Leicester Revolt.—With the passing of this Act active opposition began. An Anti-compulsory Vaccination League was formed in London, and branches soon followed in a number of provincial towns. The movement was greatly stimulated by the numerous prosecutions for default which took place. Fines were imposed, and, as many refused to pay, distraints on goods or imprisonment followed. The first parent to go to prison was a William Johnson, of Leicester. At a public meeting after his release he was presented by his admirers with a silver watch. This meeting may be regarded as the beginning of the movement against vaccination in Leicester, which became so strong that it led to the town being regarded as the "Mecca" of the antivaccination movement throughout the country.

After the serious smallpox epidemic of 1870–1, part of the pandemic which swept over Europe, the appointment of vaccination officers was made compulsory, and the authorities in Leicester, as elsewhere, attempted to enforce vaccination more rigorously. Prosecutions in the town increased from two in 1869 to over 1,100 in 1881, the total for the twelve years being over 6,000. Of these, 64 had involved imprisonment and 193 distraints upon goods, the latter often being effected with much difficulty owing to popular sympathy with the defendants. All classes of the community were represented among those who set the law at defiance, and those who were prosecuted were regarded as martyrs. Ultimately, in 1886, the Guardians decided by an overwhelming majority to cease prosecuting for vaccination default, and thereafter the vaccination laws became a "dead letter" in Leicester. As a result the number of vaccinations rapidly fell off, and for the past 40 years have averaged only about 5% of the births.

Why Vaccination was Objected to.—It would be a mistake to regard this widespread hostility to vaccination as merely the result of organized agitation. Primarily it was due to the serious after-effects and injury to health of which many people had had personal experience in their own families, or believed that they had had, and which undoubtedly were much more common in those days of arm-to-arm vaccination, when the importance of asepsis was unknown or little understood. Even after glycerinated calf lymph had replaced the use of lymph taken direct from another infant's arm public vaccinators were required to do the operation much more "thoroughly" (four "good" marks) than is the case to-day, and "bad arms" were not uncommon. To be compelled to have a healthy and beloved child vaccinated when it was sincerely believed that injury to health might follow seemed to many parents to constitute an intolerable interference with individual liberty.

The "Conscience Clause."—In 1897, in consequence of persistent and growing agitation and following the strong recommendation of the Royal Commission, new legislation was passed which included the famous "conscience clause." This enabled parents who could satisfy two justices in court that they "conscientiously believed that vaccination would be prejudicial to the health of their child" to obtain exemption from the law. Nine years later the obtaining of exemption was made much easier by substituting the making of a statutory declaration before a magistrate or commissioner of oaths for having to go into court. The effect of this loop-hole, which was very largely taken advantage of, together with the fact that by this time smallpox had greatly decreased, led to a steady and continued fall in the percentage of children vaccinated.

Warnings of Disaster to Come

Naturally, grave warnings were uttered regarding the great risk which the country, in particular the town of Leicester, was running. The then M.O.H. for Leicester, Dr. Tomkins, in his annual report for 1888, wrote as follows:

> "The sad feature about the whole business is that it is the young children of the town who are growing up in thousands unprotected and are running a risk to their lives. They have but to come in contact with the least breath of infection of smallpox to at once catch this loathsome disease."

No doubt, had I been M.O.H. for Leicester at that period, without the experience since obtained, I should have been as much alarmed as Dr. Tomkins was.

Similar warnings were re-echoed by medical experts throughout the country. Dr. J. C. McVail (1886), a recognized authority, wrote:

> "The antivaccinators of Leicester . . . having to a great extent thrown off the armour of vaccination, are waging a desperate and gallant, though misguided, conflict against the enemy. . . . But in Leicester, when its time arrives, we shall not fail to see a repetition of last century's experiences, and certainly there will afterwards be fewer children left to die from diarrhoea. It is to be hoped that, when the catastrophe does come, the Government will see that its teachings are duly studied and recorded. . . . Leicester has had little chance of getting its immunity tested."

The Leicester "Experiment"

Was it Ever Really Put to the Test?— It is now 62 years since those words by Dr. McVail were written. During this period smallpox has on many occasions been introduced into the town and three times it has attained to epidemic prevalence. When the first epidemic occurred in 1893 the outbreak was duly reported upon for the Government by Dr. S. Coupland, and he was constrained to admit that "the facts would seem to show that in this epidemic at least the natural liability to smallpox, unaffected by vaccination, was not so great as has been supposed." There have been two subsequent epidemics—which I reported upon—but nothing in the nature of disaster has occurred, although on one occasion a sudden outburst took place without warning, when 53 cases occurred in one week, followed by 21, 34, and 48 in the next three weeks. Then the outburst subsided almost as quickly as it had arisen, and six weeks later only one case occurred. The remarkable feature of this outburst was that no clue whatever could be obtained to its cause. For the first fortnight, until secondary cases arose, none of the cases could be traced. No link between any of them was discovered. They were scattered over the greater part of the town, regardless of age, sex, or occupation,

as indiscriminately as if the infection had literally dropped from the clouds—which indeed it may have done if there is anything in the theory of "aerial convection," for there were a few cases of smallpox in the hospital prior to the outburst. But at least it afforded the "chance of testing Leicester's immunity" called for by Dr. McVail. At that time infant vaccination had been abandoned for 17 years and at least 90% of the child population were unvaccinated. A certain number of school-children were attacked, as of persons in other age periods, but no school outbreak occurred nor were any schools closed.

Its Lessons.—The abandonment of infant vaccination in a large town like Leicester over a long period of years has undoubtedly provided that "control experiment" which is so necessary if any theory is to be really tested. It is worth while, therefore, to consider what lessons are to be learnt from it. The two most important lessons are:

(1) That mentioned by Dr. Coupland and referred to above—viz., that the natural liability to smallpox is not so great as has been supposed. This is not to say that smallpox is not a highly infectious disease; it is probably the most infectious of all zymotic diseases, and very few persons are naturally immune to it. But there is a limit to its infectiousness, and it has been shown in Leicester that it does not "pick out" the unvaccinated persons in a community to nearly so great an extent as has often been alleged. It was quite expected that when smallpox did visit Leicester it would fall with special severity upon the unvaccinated children. McVail expressly prophesied this. Yet during the 34 years that I was M.O.H. for Leicester, over which period more than 700 cases of smallpox (major and minor) occurred in the town, only 12 infants under 1 year of age were attacked, of whom three died. Incidentally, some of these cases, including all the deaths, were under the age limit for vaccination, so that they cannot all be fairly attributed to neglect of vaccination.

(2) The second important lesson to be learnt is the efficacy of modern methods of prevention in controlling the spread of smallpox irrespective of the vaccinal condition of the population. This again is quite contrary to formerly accepted teaching. It does not mean, of course, that smallpox will never spread in an unvaccinated community: it will do so even in a so-called well-vaccinated one. The fact is that it is not possible in practice to maintain any general population in a really well-vaccinated condition—at least not in a democratic country. To do so would entail the repeated vaccination of every individual several times during his lifetime, and this is clearly impracticable. In the British Army the rule now is for each man to be revaccinated every five years when on home service and every two years when abroad.

Why the Prophets were Wrong

Looking back it is interesting to consider why medical experts were so mistaken in their prophecies of disaster to come if universal vaccination of infants were abandoned. It was probably due to the belief, then so strongly held, that it was infant vaccination, and that alone, which had brought about the great diminution of smallpox mortality that followed upon the introduction of vaccination. That this was clearly a case of cause and effect was reiterated in every textbook and in every course of lectures on public health. It was hailed, indeed, as the outstanding triumph of preventive medicine. No wonder that medical students accepted it as an incontrovertible scientific fact. Dr. McVail in his book, which was recognized as the standard work proving the case for vaccination, made use of a very "telling" diagram with which, by judiciously selecting the periods, it was possible to show a progressive decrease in smallpox mortality *pari passu* with an increasing efficiency in the enforcement of vaccination. Other authorities made use of similar diagrams, and the apparent correlation, inversely proportional, between smallpox mortality and the amount of infant vaccination was at that time one of the principal arguments in support of the belief. We now know that this apparent correlation must have been a coincidence, because smallpox mortality continued to decrease even after vaccination was decreasing also, and this has now gone on for over 60 years. Obviously there must have been other causes at work which brought about the dramatic fall in smallpox mortality since the beginning of the nineteenth century,* and to that extent vaccination has for so many years been receiving more credit—perhaps much more—than it was entitled to.

It is not contended that infant vaccination had no effect in hastening the fall. The extent to which it did so is arguable. It would practically abolish mortality among vaccinated children; but against this it may have increased it in those children remaining unvaccinated and in persons at older age periods, owing to the detrimental effect of incomplete protection in encouraging the spread of infection by "carriers" (missed cases), which is one of the principal means, as is now realized, by which smallpox is disseminated. Considerations of space make it impossible to pursue this further here. The point it is wished to make is that the fall in smallpox mortality which followed the introduction of vaccination would have occurred sooner or later even if vaccination had never been discovered.

The Future of Vaccination

The official view is that, having regard to the great success which has attended voluntary methods in the case of immunization against diphtheria, infant vaccination will increase with the substitution of persuasion for compulsion. That this will actually happen, however, seems doubtful for two reasons: (1) In the case of immunization we are able to point out that diphtheria is a serious menace to child life, while smallpox has ceased to be a menace, at least for the present. (2) With immunization we can truthfully say that it is "very safe": ill effects are negligible and "bad arms" practically unknown. Dare we say as much for vaccination?

Not so many years ago a married couple living on the outskirts of Leicester, acting on advice, had their two children vaccinated. Both developed post-vaccinal encephalitis and both died, leaving that married couple childless: rather unpleasant for those who gave the advice! Admittedly this case was very exceptional, and the danger of developing encephalitis is less after vaccination in infancy than when the operation is performed for the first time at a later age. But other injuries to health are less uncommon. Having regard to these facts it will be difficult to work up much enthusiasm for active propaganda in favour of vaccination, and without propaganda infant vaccination will almost certainly go. Unless smallpox should return and again become a menace it seems likely that in the future vaccination will be reserved for doctors, nurses, and sanitary staffs (and all these should be revaccinated much more often than is the case at present), for Service personnel, for persons going out to the East, and for the vaccination of contacts.

The Outlook Regarding Smallpox

And lastly, what about smallpox? What are the prospects of the disease returning if infant vaccination does fall into disuse? Shall we see a repetition of the ravages in pre-vaccination times? It is doubtful if any authority really expects this to-day in spite of the prophecies made so confidently in the past.

Briefly the position is this: in Leicester during the 62 years since infant vaccination was abandoned there have been only 53 deaths from smallpox, and in the past 40 years only two deaths. Moreover, the experience of Leicester is confirmed, and strongly confirmed, by that of the whole country. Vaccination has been steadily declining ever since the "conscience clause" was introduced, until now nearly two-thirds of the children born are not vaccinated. Yet smallpox mortality has also declined until now it is quite negligible. In the fourteen years 1933–46 there were only 28 deaths in a population of some 40 millions, and among these 28 *there was not one single death of an infant under 1 year of age.* In passing it is to be noted that during the same period there were, it is officially admitted, no fewer than 51 deaths of infants from "vaccinia, other sequelae of vaccination, and post-vaccinal encephalitis." Had all the children born been vaccinated these figures would obviously have been much higher.

It certainly appears that the conditions of life in this country—"public health," "sanitation," "standard of living," call them what we will—have so changed, quite apart from vaccination, that they are no longer congenial to the spread of major smallpox. Incidentally it may be observed that other zymotic diseases which once caused a very heavy mortality in this

*I am not alone in taking this view. Major Greenwood (1930) wrote: "(3) . . . the use of this instrument (vaccination) has been one of the factors but not the sole, perhaps not the most important, factor in modifying the epidemiological history of smallpox during the last hundred years."

country—e.g., scarlet fever, enteric fever, and typhus—have shown a decline in mortality as dramatic as that of smallpox, yet no one is alarmed lest these diseases should revert to their old-time mortality, and certainly there was no vaccination to bring about their decline.

For those who still have misgivings about what may be in store now that compulsory vaccination has gone there is always this comforting thought: should major smallpox again invade this country and ever really get out of hand, we have one trump card to play which we have not got in the case of other epidemic diseases—viz., emergency mass vaccination of the whole population in the affected areas. Such a measure admittedly would be a very drastic one, and should certainly not be adopted except as a last resource. It is not a step to be taken in a moment of panic merely because a handful of cases of smallpox have occurred in a great city, but it would save the situation if effectually carried out, as it could be if the situation were serious enough. For there is one remaining position in the provaccinist line of defence which is quite impregnable in spite of all the onslaughts which have been made upon it by the other side—viz., that *a recently vaccinated person does not take smallpox no matter how much he may be exposed to infection* (this does not include a person vaccinated during the incubation period). The exceptions to this law are so rare that for practical purposes they may be ignored.

Conclusion

We suggest, then, that the abolition of compulsory vaccination is likely to be followed by a still further decline in the number of children vaccinated, until in the course of a few years the child population of this country will be almost unprotected against smallpox so far as vaccination is concerned. The adult population of course never has been really protected.

As for smallpox, no one can foretell the future. Importations of the disease from abroad may occur at any time, as has always been the case; and there is also the possibility that some day a serious epidemic may occur, as in the past. I suggest, however, that in view of the experience of the unvaccinated town of Leicester, and indeed of the whole country, during the past 60 years there is no real cause for alarm.

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THE ROYAL DENTAL HOSPITAL OF LONDON

The Royal Dental Hospital of London and School of Dental Surgery held its thirty-second annual "Clinical At Home" on Nov. 27, when many past students and visitors attended. The hospital, which now has 180 students, was extensively damaged during the war but has now been repaired, and several new departments and additions have been made, including a junior conservation department fitted with a number of manikin heads and drills for students and a new photographic department, the first of its kind in a dental hospital in this country. One of the most interesting demonstrations was in the speech therapy department. This department was established twenty-seven years ago, particularly for patients with cleft palate, but with the vast improvements brought about by plastic surgery the cases that come under this heading now are only late or second operation patients, and the work on speech therapy has been linked up with the orthodontics department. Orthodontists have felt that so long as their small patients continue to go about open-mouthed and sucking their lips their work is largely thrown away. The speech therapy department therefore gives the patients exercises with a view to getting better muscular co-ordination.

At the annual dinner which followed the "At Home" the Dean of the School, Mr. H. L. Hardwick, said that it had been felt for a long time past that the interests of students would be best served if the hospital were associated with a leading hospital and medical school, and through the National Health Service such a fusion had now been brought about, the hospital and school being in the St. George's Hospital group. Mr. Hardwick described the setting up of the new Fellowship in Dental Surgery by the Royal College of Surgeons as the most stimulating thing which had happened to the dental profession since the institution of the L.D.S. During the past year 32 former students had received the Fellowship. In the course of the evening the presentation of a cheque for over £500 was made to Miss H. M. Duncan on her retirement from the school after thirty-three years' service. Lord Webb-Johnson and Dr. E. W. Fish replied to the toast of "The Visitors."

TRYPANOSOMIASIS IN TROPICAL AFRICA

At a press conference held recently at the Colonial Office certain reports on trypanosomiasis and on the combating of the tsetse fly in East and West Africa were presented. Three of them have already been published by H.M. Stationery Office—namely, one on trypanosomiasis in British West Africa, by Professor T. H. Davey, of the Liverpool School of Tropical Medicine; a second dealing with Eastern Africa, by Professor T. A. Buxton, of the London School; and a third describing the rural development and settlement scheme at Anchau (Zaria province, Northern Nigeria), by Dr. T. A. M. Nash, Government entomologist, Nigeria. A fourth and more extensive report by Dr. Nash, on tsetse in British West Africa, is to be published shortly. Dr. Nash and Professor Buxton were present at the conference to answer questions. It was stated that the ravages of the tsetse in Nigeria are so severe that only one-fifth of the country is really safe for man and cattle. One-third of the country is an endemic sleeping sickness area. The same is true of the Gold Coast. The whole of Sierra Leone is subject to tsetse, and endemic sleeping sickness occurs in one-tenth of that country. In the Gambia the conditions are similar. As for East Africa and the Rhodesias, Professor Buxton stated that the types of fly which inhabit narrow strips beside water have been controllable for a number of years, though often at undue cost; and in certain environments, though not in all, those which inhabit belts of bush can now be expelled. He did not hold the view that tsetse is everywhere on the advance. Where it is advancing, of course, the fact is known, but the many areas in which it is retreating may not be as fully appreciated and may only be discovered by research. Dr. Nash spoke of the Anchau scheme, in which a corridor 70 miles long and 10 miles wide has been cleared and under the direction of the Sleeping Sickness Service of the Nigerian Medical Department 5,000 people have been moved from 45 hamlets and housed in 16 new villages and one town, while a further 60,000 people have been assisted by freeing areas of tsetse and providing good wells, schools, and marketing facilities. This has been paid for by a £95,000 grant under the Colonial Development and Welfare Scheme. The name of the new town is an African word meaning "Walk in Health." The prices of the reports on the Anchau scheme, on trypanosomiasis in British West Africa, and on trypanosomiasis in Eastern Africa are respectively 3s. 6d., 2s., and 3s., and that of the more voluminous report on tsetse in British West Africa is 30s.

TRAFFIC IN DANGEROUS DRUGS

HOME OFFICE REPORT

The British Government has made a report to United Nations on the traffic in opium and dangerous drugs in Great Britain and Northern Ireland in 1947. The report, which is issued under the auspices of the Home Office, states that in this country known addicts number 164 men and 219 women and include 82 doctors, one dentist, one veterinary surgeon, and three pharmacists; 10 doctors were convicted during the year for violation of the narcotic laws. Morphine and diacetylmorphine are the principal drugs of addiction; a few addicts use cocaine, but the number addicted to this drug tends to diminish, and fresh cases of addiction to cocaine are rare. It has become evident that pethidine must be regarded as a more usual drug of addiction than cocaine. Particular mention is made of two drugs. "Metopon" (methyldihydromorphinone) was shown to be of medical value, and the Relaxation Order was invoked last year to permit of its

manufacture. "Amidone" was the subject of research in Germany during the war, and has been developed on a commercial scale, the hydrochloride being marketed under the trade name "physeptone." This drug, while a powerful analgesic, is considered to be open to the same risks of improper use as pethidine, and steps were taken to place it under the control of the Dangerous Drugs Acts.

As for illicit traffic, it is stated that the only unlawful activity in narcotics which can be regarded as a traffic is the import by alien seamen of opium and Indian hemp and the use of these drugs by the smugglers themselves and their fellow countrymen in seaport towns, including London. Opium remains almost exclusively the drug of the Chinese smuggler and smoker. The traffic in Indian hemp originates with Indian, Arab, and negro seamen and extends by way of the dock areas of London to the West End, where it is peddled on a small scale. Particulars are given in the report of the exports of drugs from this country during 1947 and their destinations.

RENAL, VESICAL, AND PROSTATIC CANCER

LONDON SURVEY

Every year the Clinical Cancer Research Committee of the British Empire Cancer Campaign furnishes a statistical survey of cancer cases in the London hospitals, taking a different organ or region of the body on each occasion. A reprint of this survey, with its innumerable tables, has been made from the latest annual report of the Campaign, which has already been the subject of a general review in these pages (July 31, p. 266). This year a detailed analysis is presented of 126 cases of cancer of the kidney, 451 of the bladder, and 399 of the prostate.

In the cases of cancer of the kidney the males outnumbered the females by two or three to one, and the mean age was just over 57. Haematuria was the commonest first symptom, except in the few cases of teratomata of the kidney, when the discovery of the tumour often preceded the onset of any symptoms. In more than one patient out of ten with renal carcinoma the primary was "silent," and the first symptoms noticed were those due to metastases. Nearly three-fourths of the patients consulted a doctor within the first three months, and more than three-fourths of those who consulted a doctor were referred to hospital at once—higher figures than those for most regions of the body. Nevertheless, the growth had advanced so rapidly that 29.5% of the patients with carcinoma were found to have clinically recognizable metastases on admission.

In the bladder cases the ratio of males to females was three to one, and the mean age of the males was 63½ and of the females 66. Painless haematuria was the first symptom in 69% of cases. The proportion of patients who consulted a doctor within the first three months was only 54.4%, and in 15% the disease was of over six months' standing when they were first seen. Of the patients who consulted a doctor 77.8% were referred to hospital at once, but 11.9% were treated symptomatically for more than three months.

The maximum incidence of cancer of the prostate was in the age periods 65 to 70. The first symptom of the disease was difficult or painful micturition in 60%, but in 21% it was referred pain or some other symptom pointing to the possible presence of metastases. The proportion of patients who consulted a doctor during the first three months was 53.6%, but in about one-fifth of the cases the disease was of more than six months' duration when they were first seen. Of those who consulted a doctor 58.3% were referred to hospital at once and 17.3% were kept under symptomatic treatment for more than three months.

The many tables give the findings on examination, the methods of treatment, the five-year survival rate according to the stage of the disease and according to the therapeutic procedure chosen, the cause of death, and the findings at necropsy.

The Division of Mycology of the New York Academy of Sciences held the inaugural meeting on Oct. 22. Dr. Norman Conant, of Duke University, gave a lecture on sporotrichosis. The following officers were elected: President, Dr. Frederick Reiss, New York University School of Medicine; Secretary, Dr. Royal M. Montgomery, Polyclinic Hospital.

THE KING'S HEALTH

The following bulletin was issued from Buckingham Palace on Dec. 6:

The King's general health continues to be good, and he devotes a considerable proportion of his time to the conduct of affairs of State.

The process of restoration of the arterial circulation to the feet is proceeding slowly, and since the bulletin on Nov. 29 a further small but encouraging improvement has occurred.

In order to secure the rest and the warm environment which are indispensable for the re-establishment of the circulation, his Majesty is remaining in his apartments and spends most of the time in bed.

MAURICE CASSIDY. MORTON SMART.
THOMAS DUNHILL. JOHN WEIR.
J. R. LEARMONTH.

A more detailed bulletin was issued on Dec. 13:

Since the bulletin of Dec. 6, the King has made substantial progress.

Repetition of tests to measure the degree of arterial obstruction has given the following information:

In the left leg and foot the process of restoration of circulation has reached a stage which would be sufficient to permit some activity.

In the right leg and foot re-establishment of circulation, while progressive, has been less rapid and it is still of a degree which allows only strictly limited activity indoors.

The nutrition of the right foot is satisfactory.

With the passage of time and continuing care, further improvement in the circulation of both legs and both feet may be anticipated.

We have advised his Majesty to remain in London for the time being, but hope that early in the New Year it will be possible for him to continue his convalescence in the country.

We have thought it imperative to recommend his Majesty not to undertake any public engagements before the summer.

The improvements in the King's health which we are happy to record are in no small measure the result of his Majesty's willing submission to certain irksome restrictions and of his complete co-operation in all measures of treatment.

MAURICE CASSIDY. J. PATERSON ROSS.
THOMAS DUNHILL. MORTON SMART.
J. R. LEARMONTH. JOHN WEIR.

A lecture on "Vision, Light, and Seeing" was given recently at the London School of Hygiene and Tropical Medicine by Dr. Matthew Luckiesh, director of the lighting research laboratory of the General Electric Company, Cleveland, U.S.A. The five primary factors in vision, apart from physiological and psychological, were, said Dr. Luckiesh, the size of the object seen, the contrast between the object and its background, the brightness level, the distance, and the speed. In common optical practice a test-chart was used to ascertain the power of the sight. The results of tests on this basis revealed the threshold or minimum conditions for seeing, and the normality or subnormality of vision was determined according to the size of the letters which could be read with ease and speed at a given distance. The letters on these charts were usually printed in black on a white background, thus giving the highest degree of contrast. But the contrast of an object against its background had, of course, a definite relationship to brightness level. The less the contrast the greater the need for a higher level of brightness. At a specified distance it had been found that a black object needing 10 foot-candles of illumination when seen against a background of white paper might require 100 against a contrast of grey cloth, or 1,000 against black velvet. Dr. Luckiesh contrasted the eye strain involved in office work with that in work at a garment factory. The office worker, dealing with black print on white paper, spent her time on work involving a high degree of contrast, whereas the other might perhaps spend most of her time sewing black cotton on dark cloth. The brightness level needed in the two cases was obviously very different. The development of illumination, in the course of which the crude art of lighting up a space developed into a science, was best appreciated by regarding lighting as a chain of three links—namely, production, control, and specification of light. The first two of these had been developed over many years and had had for a long time a scientific basis. The third link, however, the specification of light—had been a crude makeshift at best, but its scientific establishment was necessary to complete the chain.

Reports of Societies

GASTROSCOPY

EXPERIENCE WITH MODERN INSTRUMENTS

At a meeting of the Medical Society of London on Nov. 22, with Dr. JENNER HOSKIN in the chair, the subject of discussion was "Gastroscopy."

Dr. AVERY JONES said that modern gastroscopy dated from the development of the Wolf–Schindler instrument in Germany, which was introduced into this country about 1934. The instrument, a remarkable achievement, had been improved by Mr. Hermon Taylor, and the time had now arrived to assess its value. Examination was carried out mostly under local anaesthesia, though it could be done under general. With adequate premedication with morphine or hyoscine discomfort was minimal. He had written to a number of colleagues to obtain their experience of the risks of the method, and although the survey was not complete, as he saw it the risk with the Wolf–Schindler instrument was very small : in about 1 in 2,000 cases there had been untoward reactions, but very few of these were fatal. With the Hermon Taylor instrument, which gave much better definition and enabled a better view to be obtained, the risk was a little greater, and something like 1 in 700 cases had been accompanied by an untoward reaction.

The advantage of gastroscopy was the increased accuracy of diagnosis. It was a valuable supplement to *x* rays. It might more frequently demonstrate a gastric ulcer ; sometimes it would show a healed ulcer, or it might reveal the presence of a diverticulum and not an ulcer at all. The method was also useful in controlling symptoms. The prognosis of a healed ulcer on the basis of gastroscopy was more accurate than such a prognosis on the basis of the *x*-ray picture.

Definition of Gastritis

Mr. HERMON TAYLOR went further into the history of the gastroscope and recalled that in 1908 Souttar and Thomson at the London Hospital developed the idea of a jointed tube which could be hinged together. He showed a picture of one of these instruments made by Mr. H. S. Souttar forty years ago, when the findings in twelve cases were described in the *Quarterly Journal of Medicine*. The method was rather overshadowed by the development of the opaque-meal examination, and no further progress was made until 1932, when Wolf and Schindler applied the principle of a flexible optical axis to gastroscopy. Their instrument was still in regular use, but it had its disadvantages, one of which was that it afforded no means of negotiating an obstruction. In 1939 he (Mr. Hermon Taylor) had demonstrated an adaptation of the Wolf–Schindler instrument which allowed the gastroscope to be bent forwards at will and enabled a near or distant view of the mucosa to be obtained. The instrument could be flexed round so as to afford a view of a tumour in the pylorus.

The gastroscope had brought a new accuracy to the study of gastric conditions. Previously the diagnosis in radiologically negative cases was largely a matter of opinion based on the test meal, the examination of the stools for blood, and the clinical history, with the result that all the cases came to be lumped together as "gastritis." The gastroscope exploded this conception of universal gastritis as explaining otherwise undiagnosed dyspepsias. Unfortunately the reports on gastritis led to a reaction against gastroscopy. Gastritis should be re-defined : it was an inflammation of the gastric mucosa, recognizable by oedema, loss of translucency, petechial haemorrhage, excessive sticky mucus or muco-pus, and perhaps erosion. Radiologically an unusual pattern or irregularity at the pylorus might simulate carcinoma, and the gastroscope helped to elucidate this problem. Some authorities maintained that all gastric ulcers should be removed surgically because 10% of them became malignant. But if the gastroscope were used and the healing of the ulcer were watched there was no question of missing any malignant change. Mr. Taylor added that the examination by the gastroscope was not one to be undertaken lightheartedly. Mistakes and accidents did occur. The commonest mistake was one which he had made many times himself—that was in diagnosing malignant change in an ulcer on one gastroscopic examination.

Gastric Acidity

Dr. A. H. DOUTHWAITE said that he gathered that Mr. Hermon Taylor argued that with a high degree of rugosity there was a high degree of acidity and a large acid output, and conversely, if the rugosity was not well marked, the acidity would be lower and the output less. He questioned whether that was quite justifiable. Among the indications for gastroscopy he included investigation of the possibility of ulcer of the stoma in patients who had indigestion following operation. Again, the method might be of some value for experimental purposes in determining the effect of various drugs on the stomach.

Sir JAMES WALTON said that he would have liked to hear more from the openers about the comparison of the gastroscopic appearances with the clinical history rather than with radiological changes. He found gastroscopy of the greatest help when it was a question of deciding whether a partial gastrectomy should be performed.

Dr. M. D. SHEPPARD spoke as one who had undergone gastroscopy. Unfortunately he had had no morphine or atropine. The sensations had been most unpleasant—a feeling of suffocation with excess of mucus.

Dr. THOMPSON HANCOCK said that the factor of discomfort was a most important one, but he did not think that excessive premedication should be used. If morphine were used excessively a confusional state resulted in which it was impossible to obtain the patient's full co-operation, but with atropine and something else—perhaps codeine—co-operation was forthcoming and there was also a diminution in salivation. He had been impressed by the view that the acid secretion could usually be foretold by the size of the fold, but there were exceptions. In considering the dangers of gastroscopy, he thought the type of tube used was important. In his experience the long rubber finger-tip was much safer to pass than the metal tip, which was the standard type on the Hermon Taylor gastroscope.

Gastroscopy and Radiology

Mr. DICKSON WRIGHT said that it was in 1915 that he saw gastroscopy done for the first time ; it was carried out by William Hill, a British pioneer in this field who should be remembered. He himself first passed a gastroscope in 1933. Gastroscopy was sometimes misleading, and this had prejudiced him against it. He felt that it increased the risk of error in dealing with carcinoma of the stomach. He had known two patients recommended for operation, one for simple ulcer and the other for carcinoma, each showing a typical gastroscopic appearance, and yet they turned out to be the other way round—what looked like the carcinoma was the ulcer and what looked like the ulcer was the carcinoma. He placed reliance on a good *x*-ray picture more than on anything else in differentiating ulcer from carcinoma. *X*-ray technique would go on improving, and at present gastroscopy was most popular in places where *x*-ray technique was not of high standard. In some brief further discussion Dr. JENNINGS urged that radiologists should work in close co-operation with gastroscopists, a co-operation which would lead to much saving of time in *x*-ray departments.

Dr. AVERY JONES agreed about the importance of clinical history and of radiology and other investigations. Gastroscopy could not be considered the final arbiter. It was only another investigation which added to the evidence available for summing up the case, but it did help. Mr. HERMON TAYLOR also agreed that gastroscopy was only one of a number of investigations, but if a clear view was obtained, then "seeing was believing." In his view rugosity indicated the capacity of the stomach—the level at which it could produce its secretion under the stress of emotion. It was not sufficient to form an opinion on the test meal itself.

VAGINAL DELIVERY AFTER CAESAREAN SECTION

A meeting of the North of England Obstetrical and Gynaecological Society was held at Manchester on Friday, Nov. 5, with the president, Mr. J. E. Stacey, in the chair.

Mr. S. B. HERD (Liverpool) read a short paper on vaginal delivery after lower-segment caesarean section. This was based on a personal series of 18 cases seen in a single hospital under standard conditions within two years. Discussing particularly cases in which the caesarean section had been carried out after failure of trial labour in primigravidae, Mr. Herd pointed out that the course of their next labours had resembled those of multiparae, the average duration being less than twelve hours. One important factor making for success was the more efficient uterine action in the second labour, while a psychological factor probably also played a part. There had been no maternal or foetal mortality in these cases when delivered vaginally, and no case of rupture of the uterus. In view of these good results it might be profitable to resort to caesarean section more readily in seriously delayed first labours. In all, the incidence of repeat caesarean section had to be repeated in 44% of the 18 cases, a lower figure than was generally reported. "Once a caesarean, always a caesarean" was not true of the lower-segment operation, especially in the absence of gross pelvic contraction, although there did not appear to be any clinical method of detecting dangerous thinning of the scar in labour.

In the discussion which followed, the president stressed that all women who had previously had a caesarean section must be delivered in hospital at all subsequent labours. Mr. C. H. WALSH (Liverpool) quoted the results of a series of 70 cases, and emphasized the importance from the point of view of subsequent vaginal delivery of carrying out the lower-segment operation in cases of placenta praevia. Dr. REDMAN (Manchester) gave parallel figures for St. Mary's Hospital.

At the same meeting Mr. R. M. CORBET (Preston) described a case of adenocarcinoma in one horn of a uterus bicornis unicollis. Sir WILLIAM FLETCHER SHAW (Manchester) also described a case of adenocarcinoma of the vagina. Dr. RICKARDS and Dr. AUCKLAND (Manchester) discussed a case of chronic vegetative serpiginous pyoderma affecting the umbilical, pubic, and vulval areas in a woman of 28. The predominating organism on culture was a staphylococcus, and the condition finally responded to curettage of the abdominal area and simple vulvectomy.

SOUTH-EAST METROPOLITAN REGIONAL TUBERCULOSIS SOCIETY

The inaugural meeting of this society was held at the County Hospital, Orpington, on Nov. 13. A draft constitution was discussed and amended and officers of the society were elected as follows: president, Brigadier H. L. Glyn-Hughes; vice-president, Dr. W. E. Roper-Saunders; chairman, Dr. F. Temple Clive; vice-chairman, Dr. R. Livingstone; hon. treasurer, Dr. T. W. Lloyd; hon. secretary, Dr. D. L. Pugh. It was intimated that the aims of the society are purely clinical.

More donors gave blood to the National Blood Transfusion Service during the June quarter of this year than at any time since the war, reports the Ministry of Health. They numbered 98,055, including 24,075 new donors. In the same period 30,497 people joined the service—the highest number since March, 1947, bringing the total strength to 377,304 for England and Wales. The steady increase in blood transfusion is reflected in statistics for the June quarter, which show that 77,148 bottles of blood were issued, a rise of some 21,000 over the same quarter of last year and of 31,000 compared with the same quarter of 1946. The number of bottles of dried plasma issued was 15,849, compared with 14,959 in the corresponding quarter of 1947 and with 13,906 in the corresponding quarter of 1946. To provide for future needs caused by increasing demands on the service and to reduce calls on existing donors, it is estimated that another 142,000 donors are needed in England and Wales.

Correspondence

Taking Children's Temperatures

SIR,—I have been impressed by the convincing article of Professor Alan Moncrieff and Dr. B. J. Hussey (Dec. 4, p. 972) showing that in infants a rectal temperature reading is the most reliable guide. Yet I wish I could feel persuaded that this should be the routine method for registering temperatures in young children. This article, rather lightly perhaps, dismisses the psychological objections to the practice as "more theoretical than practical"; but I think this is because there is no available observer to correlate the adult sexual difficulties of a patient with his medical treatment during infancy.

In 1924 my late chief, Dr. David Forsyth, then a friend of Freud, taught that all interference with the bodily orifices should whenever possible be avoided; for, being "erogenous zones," they will quickly become "conditioned"—either positively or negatively—to interference and may later become responsible for various functional disturbances. In common with others of my generation I considered this teaching fantastic, but I revised my opinion shortly afterwards when a nursery school in which I was interested decided to abandon their routine of taking daily rectal temperatures, for the children were so obviously becoming fascinated and excited by the process. Since then I have seen numerous instances which confirm such theories, yet they are all cases which would have been overlooked had I not been already made aware of these fundamental associations.

It would appear that the anal interference of infants can be accepted by them as a humiliating, painful attack, when it may lead to symptoms such as vaginismus, tenesmus, etc., in later life; or it can be accepted as a guilty, seductive pleasure, leading to a "fixed" erogenous sensation in that area. Recently a Frenchwoman, married and with children, discussed her frigidity and confessed with extreme embarrassment that she realized "how much she was missing" when orgasm eluded her, for she could experience it readily with any anal contact. On questioning it transpired that, having rheumatic fever when she was very young, rectal temperatures had been taken for many months: she had never associated these incidents with her frigidity, although she remembered them to be "very exciting." A middle-aged woman who suffers from vaginismus on questioning (only) revealed the fact that her nursery training had been by means of enemata and suppositories, and (on pressure) confided in me that her two brothers were homosexuals, presumably of the passive type.

Such case histories are doubtless legion; but the fact that they are so unacceptable to us all may be one of the reasons why the syndrome receives so little recognition. Nevertheless, this point must be made: that it is inconceivable that people with such disorders in adult life are going to return to their paediatrician and enlighten him—even if they could—about their subsequent difficulties. Medical psychologists who deal with sexual deviations are well acquainted with these facts, which somehow do not penetrate to the nursing and medical professions at large. Some mothers recognize intuitively that any anal interference offends the child's privacy; and it is interesting to find the association between homosexuality and faulty nursery training accepted by that very shrewd observer Claud Mullins in his recent book *Crime and Psychology*.

Perhaps some medical psychologists would state their views on this important matter? If these facts are agreed to be true, they should lead to modification of this practice in the leading children's hospitals. In my own view it is not justifiable to interfere with our infants in such ways except on an occasion where the gravity of a physical illness makes accurate recording of the body temperature really imperative.—I am, etc.,

London, N.W.1. JOAN MALLESON.

SIR,—I was interested in the article by Professor Alan Moncrieff and Dr. B. J. Hussey (Dec. 4, p. 972) on temperature recording in sick children, and I consider the subject to be one of considerable importance whether the patients be children

or adults. Having been a hospital patient myself on a number of occasions in the past few years I have had opportunity to make my own observations on this question and have now as a consequence developed the deepest distrust of all temperature recordings in hospital. Their very low degree of accuracy unquestionably explains many unexpected rises and falls in the febrile chart and is liable to cause great confusion unless the possibility of error is constantly borne in mind.

In my opinion this inaccuracy is due to several factors. The method and site are important: axillary readings are useless and should be abandoned. The most practicable method for general use in adults is the buccal, but even this does not guarantee a correct reading, as in the majority of cases the thermometer is never left in long enough. To shake the thread down as far as it will go and then leave the instrument in for 30 seconds dead, as is so frequently done, is not good enough: 60 seconds is much better and 2 minutes or more better still.

Another factor with some bearing on the subject is that temperature recording is a routine and doubtless monotonous task. It is as a consequence frequently left to the junior nurse, who is often only too anxious to get the job over and done with as soon as possible. As a result it is skimped, no discrepancy is appreciated in a pulse rate of 120/min. and a temperature reading of 97° F. (36.1° C.), and the temperature reading is faithfully recorded as such. Even pulse recordings counted over 15 seconds are not highly accurate, and I have known a nurse to be as far out as 40/min. in her recording. Doubtless nurses will object to spending a minimum of two minutes on each patient in a 30-bed ward, but surely it would at least be worth while taking the little extra trouble over pyrexial patients in whom the temperature chart is of great importance.

During a long pyrexial period extending over several months I have had opportunity to check and recheck these observations on myself: 30 seconds often produced little significant temperature rise, 1 minute gave a higher reading, and 2 minutes or more frequently a reading of 101° F. (38.3° C.) or over. The wide divergence in hospital readings I noticed as a house-surgeon first drew my attention to this subject. I found that out-patient department axillary readings often showed no fever, whereas readings I took myself in the same patient by leaving the oral thermometer in place for an adequate length of time produced a most significant rise, sometimes of 2° or 3° F.

I am sorry if I have dwelt unduly on this subject, already partly covered in the article published, but after underestimating one or two complicated cases of appendicitis by relying on the slipshod methods in general use among nurses I consider the matter to be one of fundamental importance. Anyone who has seen the obviously phony appearance of a temperature chart showing a neat row of blobs dead on the 97° F. line throughout will agree that something is wrong with the temperature readings so frequently recorded in hospitals.—I am, etc.,

Edinburgh. ADAIR GIRBY.

SIR,—While the findings of Professor Alan Moncrieff and Dr. B. J. Hussey (Dec. 4, p. 972) on the variation of the temperature as recorded in the axilla, groin, mouth, and rectum are of interest and importance, I cannot agree that their conclusion that the axilla and groin should be discarded as sites for temperature readings is sound.

What is of importance, surely, in a temperature reading is not the actual reading but the extent to which the reading differs from the normal. If we accept, and the fact is incontrovertible, that the normal reading in the axilla or groin is lower than that in the mouth or rectum, then difficulties in interpretation do not arise provided that the temperature is accurately recorded. For many years I have regarded a temperature of 98° F. (36.7° C.) in the axilla or groin as evidence of pyrexia. It should be a simple investigation to determine the precise range of temperature readings in these sites on a large number of normal children such as can be found in schools.

Particularly in general practice the mouth or rectum are thoroughly inconvenient sites for temperature readings. The difficulty of sterilization, the added time factor, and the unpleasantness of rectum manipulations militate against these sites. I agree that the axilla is a difficult area in children and in adults in which to be certain of taking accurate readings, but the groin in infants is a perfectly easy, safe, and accurate site. Children may be "thin subjects" as far as the axilla is concerned, but it is always easy to bury the thermometer in a fold in the groin. May I add that the difficulty that is due to the fact that a thermometer does not register accurately in less than five minutes in the groin applies almost as much when it is used in the mouth.—I am, etc.,

Manchester. BASIL LEE.

SIR,—The discrepancy between mouth and axillary temperatures pointed out by Professor Alan Moncrieff and Dr. B. J. Hussey (Dec. 4, p. 972) is an interesting fact that is surely appreciated by every G.P. if not by hospital physicians. No doubt many have used it to reassure anxious parents who are so impressed by the actual height of their child's temperature. What may not be so commonly realized is that local inflammatory conditions of the mouth (gingivitis, etc.) tend to increase this discrepancy. I have recently seen two children where the difference was nearly two degrees. One of them was being kept in bed as a P.U.O., till the nurse in charge noticed that axillary temperatures were always normal and examination of the mouth revealed a stomatitis. It would be interesting to know if this factor was operative in any of Professor Moncrieff and Dr. Hussey's most striking cases, such as the child with purpura whose chart was illustrated in Fig. 1.

To take rectal temperatures is obviously the rational and scientific solution, but perhaps this is differentially raised in cases of enteritis. Psychological trauma may be a mere bogy, but the child certainly resents its loss of dignity for a while and greets further visits from the doctor with tears instead of smiles.—I am, etc.,

Margate. T. S. STONE.

Neonatal Asphyxia

SIR,—I hope that the correspondence which has followed my letter (Oct. 30, p. 797) on neonatal asphyxia will ensure that the practical applications of Sir Joseph Barcroft's discoveries will no longer be neglected in midwifery teaching, practice, or textbooks. All your correspondents have raised points of interest on which I should like to comment briefly.

Dr. W. Radcliffe's letter (Nov. 13, p. 878) recalls the "sparklet" resuscitator, which was most successful when first introduced but whose popularity seems to have waned. I pointed out to Sir Joseph many years ago that the efficacy of this apparatus was almost certainly not due to the carbon dioxide but to the fact that the gas had been rapidly expanded from the sparklet bulb and was therefore intensely cold. It was the bitterness of the blast on the sensitive nasal mucous membrane and not the composition of the gas that was the effective agent. As soon as people in a well-meant attempt at gentleness began to warm the carbon dioxide its efficiency disappeared, and the very handy and effective device became discredited—through misunderstanding.

Dr. A. H. Galley (Nov. 13, p. 878) brings both common and uncommon observation to reinforce Sir Joseph's demonstration of the great importance of cutaneous and other stimuli in restoring or initiating respiration, but it does not solve the problem, which I think is most important, whether the response to these stimuli persists when the respiratory centre is poisoned or inactive, for if this is so it might help enormously in the treatment of asphyxia from nearly any cause except poisoning by cerebral convulsants. Incidentally I think he misinterprets the "sadistic attacks," which I presume to be the old-fashioned and often very effective spanking, though blowing on the abdomen is often more effective still.

Drs. E. Lewis Butler and Sarah Butler (Nov. 20, p. 918) put the case for "coramine" (nikethamide) very well, and Mr. W. G. Mills (Nov. 27, p. 956) points out its virtues and also some of the snags of injection into the umbilical cord, which is the route usually favoured by the textbooks. I have neither the experience nor the pharmacological skill to argue the case between coramine and "cardiazol" (leptazol), but undoubtedly Professor Barcroft's experiments do suggest that the agent used should have semi-convulsant properties, and it is not usually considered that coramine is a convulsant, though Drs. E. L. and S. Butler state that they have seen spasm result from intracardiac injection. Cardiazol is, of course, well known as a convulsant and used in convulsant therapy as a reasonably safe one, while ephedrine, which I have always used with it, has many pharmacological properties in common with it. (I should, of course, like to have used all these drugs singly, but

being a general practitioner my business has been to save life and not carry out experiments which might endanger it in the conditions of general practice, and when I have found one good drug I stick to it till it fails and I feel justified in trying another.)

But these two letters put together add something to the jigsaw. The fact that the injection, when given into the umbilical vein, often has to be milked along it shows that this is a relatively indirect way of introducing the drug, that it is introduced relatively slowly and perhaps uncertainly. I therefore agree with the Drs. Butler about giving whatever drug is administered into the heart cavity, for one then knows exactly how much is given, it is easier, quicker, and more certainly sterile, and the fact that I have once had to give a whole millilitre of cardiazol-ephedrine in this way before I got a response suggests that in some of these cases it needs a pretty strong concentration in the blood if some of these quite viable babies are to be saved. I also agree with the Drs. Butler about the advisability of giving some of the drug intramuscularly also. Personally I always try this first, and in most cases it is successful within a few minutes. If it is not, I go into the ventricle with the other 0.5 ml., knowing that the first dose will be useful in supplying a little more when the circulation gets going. I think that this may be the reason that Mr. Mills is pessimistic about such treatment preventing neonatal respiratory troubles. There is probably need for more than the initial stimulus—quite apart from the possibility that cardiazol-ephedrine would have given better results—and I find that nearly all the babies whom I have treated in this way cry very much more in the first 24 hours than normally. This does not seem to exhaust them in any way but does ensure thorough expansion of the lungs.

I would only add that experience with caesarean babies is not quite applicable to normal births. For some reason caesarean babies are much more liable than others to die rather quickly and inexplicably. I had a long talk with the late Professor Dougal on this subject some while before he died, but beyond confirming that this was a fact he had no explanation to offer for it. On reflection, it suggests to me that the seemingly rather dangerous and prolonged anoxaemia of the brain during the passage through the birth canal may have some recondite but beneficial biological action, just as the apparently wanton destruction of erythrocytes soon after birth has been explained by Professor Barcroft as nature's way of providing a depot of iron to guard against anaemia. All these are intensely interesting as well as practical problems, and perhaps observations in general practice may yet help researchers in their elucidation, though I greatly fear that the dead hand of Ministry of Health regulations may soon diminish our chances of making them.—I am, etc.,

Winsford, Cheshire. W. N. LEAK.

Marxist Genetics

SIR,—In his review of Lysenko's address on Soviet biology (Nov. 13, p. 862) Professor Darlington has adopted not without effect the hard-hitting and harsh polemical style of his Russian *bête noire*. Lysenko's brand of evolutionary genetics—called variously Michurin Darwinism or Lamarckian dialectical materialism and here, for short, Lamarxism—appears from Darlington's onslaught as the outpourings of a charlatan and political sycophant whose biological views are subject to censure or approval by the Central Committee of the Communist Party of the U.S.S.R. However, one of Darlington's most "telling" points in support of this condemnation does not appear to check up at all with the text of the address. Darlington says that there has been a deletion of "the notion" previously advanced by Lysenko "that there is no competition within species," and he makes the damning inference that this tenet of Lamarxism has been suppressed at the dictate of some Party expert as being at variance with orthodox Marxism. But in fact Lysenko sticks to this view as irritatingly as he apparently does to his other quaint opinions. He says (p. 38), ". . . after a deep and comprehensive investigation I have come to the conclusion that there exists no intra-specific struggle but mutual assistance among individuals within a species, and there does exist inter-specific struggle and competition and also mutual assistance between different species." No doubt mounting disgust at the crudity of style and argument rather than political spleen is responsible for the misstatement by the reviewer. The point is nevertheless of some interest, as Darlington relies on it to "catch out" the Western professors and counterparts in their Lamarxist "contortions." The "deletion," he says, "catches" these Western imitators "in the middle of the act with their eyes shut and not knowing whether to go on coiling or to turn over backwards." Darlington, largely on this particular point, does not spare his scorn at the Western acrobats "playing at apology under the Soviet circus master."

Surely this ill-directed polemic, which takes up a considerable portion of the review, is not calculated to help the ordinary reader or even those interested in genetics towards a calm and non-political approach to this problem. Has not the time arrived when we may expect from our leading geneticists reasoned criticism, well documented and soberly expressed, which by all accounts would easily demolish the feebly supported generalities and the long-exploded and irrational doctrines of the Lamarxists ?—I am, etc.,

Oxford. J. S. WEINER.

Pensions for Diabetics

SIR,—I read with interest the letter on the above subject from Dr. R. D. Lawrence (Nov. 13, p. 875). Whilst appreciating his views, it cannot be too strongly emphasized that all cases of diabetes occurring in the Service cannot be bunched together and dismissed because medical opinion can find no evidence that various extrinsic conditions are causal factors in its aetiology. Each case must be dealt with individually on its merits, and this point has been argued and won before the tribunals and the High Courts.

The question of war pensions is not entirely a medical one, but in fact is largely legal. The royal warrant puts the onus of proof on the Minister of Pensions, and it is only right that he should be made to discharge this onus on the evidence in each particular case. It would appear that Dr. Lawrence has approached this question of onus in the wrong way. The question is not whether you can find evidence to associate a disability with service but whether the evidence shows that the disability can be dissociated from service.

Another pot-hole into which one is liable to stumble when looking at a case from a medical point of view is the question of the interpretation of the words "attributable to service." Correct interpretation was given by the Court of Session in Brown and others *v.* Ministry of Pensions (*War Pensions Appeals*. Edited by Chapman; p. 464). The relevant passages are quoted hereunder:

"When, as in all these fourteen cases, the issue is whether it has been proved beyond reasonable doubt that a disease is not attributable to war service, it is vital to keep clearly in view what is involved in that issue. The use of the word "attributable," and the nature of the tribunal selected for the purposes of affirming or denying attributability, indicate in our view that the search is for causation no doubt, but not in the metaphysical or in the scientific sense but in the wider and more liberal sense in which 'the matter would be understood by the man in the street applying common-sense standards.' The issue in Yorkshire Dale Steamship Co. *v.* Minister of War Transport and Muir *v.* L.N.E.R. was very different, but the principle is in our view the same."

The following extracts from the same judgment also emphasize the fact that cases must not be decided wholly on the medical aspect (loc. cit., p. 463):

"In three of the cases (Halbert, Martin, and Hefti) the account given of the proceedings before the tribunal suggests that a serious misconception prevails as to the judicial functions of the tribunal and its members. The cases state in detail the medical advice given to the tribunal by the medical member and the legal advice given to the tribunal by the legal chairman. That legal advice took the form of a statement that, because in terms of Article 2 (2) (*b*) of the royal warrant the Minister must in certain cases decide in accordance with the opinion of his medical officers, the 'same criterion' must be applied by the tribunal, and, in the absence of conflicting medical evidence, the decision must be rested on 'the informed medical opinion' on the facts as distinct from 'the non-medical view,' unless new facts have emerged in evidence which destroy or throw doubt upon the medical view. The startling result of such advice would be that, whenever the medical member agreed with the view of the Medical Services Division as to the effect of the facts, the decision of the case would rest with the medical member alone to the exclusion of the other two members.

"If it had been intended for instance that medical questions relating to pensions should be determined solely by considerations

appealing to the 'informed medical mind,' the appeal would have been to a board of medical experts and not to a mixed tribunal."

Finally, it would appear that even the Ministry of Pensions' Medical Services Division—and I venture to think many other medical men—are not in agreement with Dr. Lawrence on the question of the amount of disablement arising from diabetes, as in all cases accepted for pension the percentage awarded by the Ministry is usually fairly high. These percentage assessments are, of course, given in accordance with Article 9 of the royal warrant, which means that the assessment is on a comparison between the disabled member and a normal healthy man of the same age, not taking into account his incapacity for employment or any other external factor.—I am, etc.,

J. H. WOOD,
Pensions Officer, British Legion, Scotland.

Edinburgh.

Interinnomino-abdominal Operation

SIR,—I read with interest the paper by Mr. David Mitchell and Dr. J. A. Baird (Nov. 27, p. 940) reporting a case of interinnomino-abdominal amputation, and I should like to congratulate them on the excellent result. They say, however, that "no case has been recorded in which a prosthesis has been fitted." In October, 1947, at the second International Conference of the Emergencies of Medicine and Surgery in Lisbon I reported and showed a film of a patient who had had a hindquarter amputation in December, 1945, and who was fitted with an artificial limb seven months later. This patient is walking well with one stick. A reference will be found in the Portuguese literature in the published *Proceedings* (2nd series, No. 1, Lisbon, 1948).

Since then a further hindquarter amputation has been performed, eighteen months ago, and the patient, a male, is now also walking on an artificial limb and making good progress. These patients will be reported in the English literature in the near future.—I am, etc.,

H. A. BRITTAIN.

Norwich.

Treatment of Placenta Praevia

SIR,—We read with interest Mr. W. G. Mills's article (Nov. 20, p. 896) on the conservative treatment of placenta praevia, and we must congratulate him and his colleagues in Birmingham on their excellent maternal and foetal results, which would be difficult to better. We would, however, like to comment on several points in his paper.

With regard to our views (*Edinb. med. J.*, 1947, **54**, 504, 510) being regarded as "reactionary" we would point out in the most amicable manner that Mr. Mills has subscribed to some of them. We did not condemn the expectant treatment of placenta praevia but sounded a note of caution as to its universal application. We note that in Mr. Mills's series, after the patient has reached the 37th week, treatment is undertaken forthwith to avoid further unnecessary blood loss to the mother and possible foetal asphyxia from sudden haemorrhage. Mr. Mills's conservatism, therefore, cannot be considered extreme. In our review we found that the foetus had to attain the birth weight of 6 lb. (2.7 kg.) to have a 90% chance of survival. In the cases delivered between 36 and 38 weeks only approximately half were up to this weight, so in our view delivery at 37 weeks still carries a definite foetal risk.

Further, in regard to our foetal mortality we would point out that we reviewed 505 cases over a period of six years and encountered eight foetal abnormalities, which would influence our foetal mortality, which is uncorrected, by 1.6%. This is, of course, negligible in our cases, but we mention it to emphasize the various factors which operate with regard to the number of cases reviewed. We are not statisticians, but Mr. Mills has had no case of foetal abnormality in his 100 cases, and presumably, as such abnormalities are fairly evenly distributed throughout the population, he may encounter those in a further 400 cases.

We would point out that we mentioned in our conclusions that one of the cases in our series died of a fatal vaginal haemorrhage which occurred in hospital after admission. She was promptly and adequately treated with massive blood transfusion, but was never fit enough to be considered for operation. No vaginal examination was made, and placenta praevia was diagnosed after death. In the discussion on our paper Professor Fairlie mentioned a "near death" during expectant treatment. We consider this evidence that on occasion "catastrophic" haemorrhage can occur when no vaginal examination has been made.

We note with interest that Mr. Mills stresses an adequate standard of nutrition among the patients as a requirement for expectant treatment. We would like to make the point that the nutrition of the patients in Glasgow leaves much to be desired, especially among women of considerable parity. This weighed very heavily with us in reaching our conclusions. We would repeat our view that in the average multipara in the large industrial area from which our cases come anaemia and malnutrition are the rule, and we are very loath to introduce any factor which may even to a slight degree prejudice the outcome from the maternal point of view.

Finally, we would make a plea for simpler classification of placenta praevia. We note that in Mr. Mills's series the general procedure was to perform caesarean section in the cases where the placenta was palpated across the cervix or coming up to its margin and to rupture the membranes in the others. This also was the procedure generally followed in the cases in our series. Surely, therefore, from the clinical point of view there are but two types of placenta praevia—those that can be felt across the cervix or up to its margin, and the others. We suggested in Edinburgh that severe and mild would cover the condition, but major degree and minor degree would appear equally suitable. Any further subdivision appears unnecessary and confusing.—We are, etc.,

HUGH STIRLING.
R. A. TENNENT.

Glasgow.

SIR,—In recent years excellent results have been achieved by the conservative treatment of placenta praevia, and the report of a series of 100 cases by Mr. W. G. Mills (Nov. 20, p. 896) is impressive. The remarkable reduction in the foetal mortality without added risk to the mother reported by Macafee, Johnson, Mills, and others is likely to excite the enthusiasm of many obstetricians less favourably placed for this method of treatment. I well remember that such a foolhardy enthusiasm on the part of some obstetricians on the appearance of Macafee's first report resulted in some disasters. Most people forget that such achievements are not the result of one man's efforts. They are the results of full and persistent co-operation of the patients, midwives, practitioners, and the nursing and medical staff of well-equipped and highly organized hospitals with facilities for immediate blood transfusion in liberal amounts and timely, safe, and skilled operation.

Every obstetrician must be alive to the environments in which he is practising and the type of patient he is to treat. There are vast populations in this world (e.g., in Pakistan, India, China, Africa and several other places) for whom the facilities obtainable in London, Belfast, or Birmingham do not exist. Many patients in my country, Pakistan, when admitted to the hospital are at first very co-operative and readily accept all conditions for treatment. But later on, all of a sudden, they leave the hospital at their own risk. They lend themselves easily to vaginal examinations by ignorant midwives. Indeed, they even make their own vaginal examination, as was done by one of the patients undergoing expectant treatment for placenta praevia at the Lady Willingdon Hospital, Lahore. The medical practitioners too find it difficult to restrain themselves from making vaginal examinations and manipulations before sending the patients for hospital treatment.

Of the 200 cases of placenta praevia studied by me (Thesis for M.S., 1946) and treated during a period of 12 years (1934–45) only 14 patients received expectant treatment. Two of the 4 patients who left the hospital at their own risk were readmitted after 3 and 20 days respectively in a serious condition and died soon after admission. The obstetrician should carefully note Mills's statement: "On several occasions there was a sudden loss of 15–20 oz. (425–570 ml.) of blood, usually in the middle of the night." These haemorrhages did not prove catastrophic. But the obstetrician must carefully study his patients, who may be unfit to stand such a sudden loss. Such losses may appear innocuous and yet may pave the way to a catastrophe during the third stage. Or they may

result in anoxia of sufficient degree and duration to cause permanent damage to the nervous system of the mother as well as that of the foetus, resulting in psychic and nervous troubles in later life. Rarely even Simmonds's disease may develop.

To my mind the expectant treatment of placenta praevia is highly desirable provided all the requisite conditions are satisfactorily fulfilled. Above all, blood transfusion should be used liberally not only to save life but also to prevent damage to the delicate nerve cells from anoxia.—I am, etc.,

Isleworth, Middlesex. M. S. QURESHI.

Resuscitation by Rocking

SIR,—I was very interested in the article (Sept. 18, p. 554) by Dr. F. C. Eve and the late Dr. N. C. Forsyth on resuscitation of infants by rocking. My father, Dr. L. Welply, told me some twenty years ago how he used to revive newborn infants by wrapping them in a towel and swinging them down between his legs and up over his head—the height of the ceiling and other obstructions permitting. This is clearly an exaggerated form of rocking, and if, as Dr. Eve suggests, the rocking helps to expel stagnant blood from the infant's head my father's method must have done it even more efficiently.

When I was accoucheur at the London Hospital I used a milder form of the swinging method successfully on many occasions, and when I came out to China two years ago as consultant orthopaedic surgeon and was asked to organize the maternity services here while building alterations were being made to the new orthopaedic department I introduced the rocking method to my Chinese interns. The custom here has been to belabour the newborn infant with the flat of the hand until it cries, a method not conducive to recovery from shock.

My method is to wrap the newborn infant in two towels between which a warm hot-water bottle is placed and so arranged that it lies behind the child's back. The left hand is then placed behind the infant's neck so that the occipital region is held between the extended thumb and index fingers and the infant's left shoulder is fixed by the curve of the little finger. The infant's body lies along the left forearm and its thighs are held by the right hand placed behind them. The infant is then held up to the left shoulder in the position commonly used for making babies eructate, and by swinging the left forearm outwards and downwards the infant can be swung through almost 180° into the head-downwards position, the left hand moving slightly with the thighs and the left forearm remaining almost stationary across the resuscitator's lower chest.

Resuscitation by this method can be continued almost indefinitely without fatigue, as the "bundle" of infant, towels, and hot-water bottle rest against the shoulder at the end of each up-swing. Besides lack of fatigue to the operator, the following advantages are claimed for this method. (1) The shocked infant is kept warm throughout. (2) Full use of the comparatively heavy infant's liver as the motive force for the movements of the diaphragm and lower chest are obtained. (3) The head-downwards position encourages all mucus and other fluid obstructions in the upper respiratory system to drain easily, and if this position is maintained for a few seconds periodically an attendant can remove them with a mucus catheter. (4) Air intake can be heard as the infant reaches the head-upwards position, its mouth being very close to the operator's ear. (5) Spontaneous respiration can be felt by the little finger where it holds the shoulder from slipping. (6) The infant's colour can be observed each time it is coming up in the up-swing if a small area of the face is left exposed. (7) Except for the pumping action of the liver due to the swinging motion the infant's state of shock is not aggravated by the rough handling that all other methods of resuscitation entail.

Finally, may I add that it is my custom to inflate the lungs first by mouth-to-mouth respiration through several layers of sterile gauze, and I have yet to see a respiratory infection started as a result. It is remarkable how such infants obtain and maintain a good colour long before spontaneous respirations start, and in heavily anaesthetized or morphinized infants, due to prolonged anaesthesia or too recent an injection of morphine in the mothers, their colour can be maintained pink by swinging as slow as 4–6 times a minute in many cases, their heart beats remaining strong throughout. Furthermore, if one decides to give oxygen the tube can be led through the towels to warm it, across the palm of the operator's left hand to steady it, and so to the infant's nose or mouth—and the swinging can still be done without obstruction or difficulty.—I am, etc.,

Tongshan, Hopei, N. China. W. R. WELPLY.

Fibrositis

SIR,—Fifty years' experience have convinced me that fibrositis is a reality not to be dispelled by scientific doubt but only by physiotherapy, and I am glad that Dr. R. O. Adamson (Nov. 27, p. 956) recalls Professor Stockman's conclusive evidence in proof of its existence. Dr. I. H. Milner (p. 955) apparently agrees, but I do not quite follow him in the paragraph headed "Pain."

The most common form of fibrositis affects women who do much knitting or ironing. In both these occupations the shoulder-girdle is unconsciously held slightly but rigidly raised for long periods. Muscles thus maintained in contraction fail to rid themselves of the products of their own combustion, which act as irritant poisons and set up an exudative inflammation in the connective tissue. In course of time this exudation becomes organized to a greater or less degree, and the "knots" are easily felt on deep palpation. The natural movements of the arm and shoulder to ease pain stretch (but hardly tear) the muscle fibres and so tend to remove the accumulated products of muscle metabolism by improving the local circulation. Skilled massage rarely fails to relieve the condition.

Lumbago due to prolonged stooping has a similar pathology, but when caused by rupture of muscle fibres is more spasmodic. That spasm of muscle *per se* causes pain can hardly be doubted by an athlete who has had the misfortune to rupture a fibre or two of his quadriceps or gastrocnemius.—I am, etc.,

King's Langley, Herts. T. BLANCHARD SELLORS.

Treatment of Abortus Fever

SIR,—With reference to the article by Drs. J. MacD. Holmes and Robert Hughes (Nov. 13, p. 859) on the treatment of abortus fever with sulphonamides and blood transfusions I should like to state that when I was house-physician to Professor J. E. Debono at St. Luke's Hospital, Malta, in the first six months of 1947, I saw a great number of excellent results in the treatment of undulant fever with large doses of sulphadiazine. The fever, whether of recent or late onset, immediately dispersed after 3 or 4 days and did not return, though the patients were followed up for weeks afterwards. In all cases an average of 86 g. of the sulphonamide was given over a period of one week; smaller doses were not successful. In recent months these good results have not been obtained; why this is so I do not know, but maybe we are dealing with different strains of the *Brucella*.—I am, etc.,

Floriana, Malta. R. O. PARNIS.

Umbilical Cord Injections

SIR,—In the letter on neonatal asphyxia by Mr. W. G. Mills (Nov. 27, p. 956) I was interested to hear that he had experience of interference with the blood supply to the leg following an injection of nikethamide into the umbilical cord. I have reason to believe that other substances injected into the cord may, owing to their entry into the umbilical artery, cause a condition similar to that described. Investigations to prove this are proceeding and will be published later.—I am, etc.,

Liverpool. A. G. O'MALLEY.

Midwives and Drugs

SIR,—In your issue of Nov. 27 (p. 959) you publish an extract from a letter from Dr. A. H. Driver under the title "Midwives and Drugs." I should like to point out to Dr. Driver that in Notice No. 4 of the Midwife's Code of Practice, which is published with the Rules of the Central Midwives Board, it is stated that a midwife should ordinarily carry among other drugs "a preparation of ergot for intramuscular injection."

Dr. Driver also complains of the rigidity of the rules governing midwives. I think the only reply necessary to this complaint is to refer Dr. Driver to the Rules which have been in force since October, 1947, throughout England and Wales. As far as possible the Rules have been reduced to a minimum and are largely of an administrative nature. There is added a section consisting of a number of notices which comprise a Midwife's Code of Practice. These notices are similar to the Warning Notices issued by the General Medical Council for the medical profession. Their purpose is to indicate the standard of practice to which a midwife is expected to attain. In Notice No. 4,

already referred to, a midwife is not prevented from prescribing any drug so long as she has been "thoroughly instructed in its use and is familiar with its dosage and methods of administration or application," and so long as she observes the Dangerous Drugs Regulations.

The last point made by Dr. Driver concerns differences between the practice of different local supervising authorities. The Board is well aware of these differences, which, it is hoped, will disappear with the elimination since July 5 of a number of the small local supervising authorities. Although the Board cannot interfere in the normal relation of the employed midwife to the employing authority, every effort is made to encourage local supervising authorities to maintain a uniform policy in carrying out their statutory duty of supervising midwives in accordance with the rules laid down by the Central Midwives Board, and the Board will be glad to take up with any local supervising authority the question of deviations from this general standard.—I am, etc.,

ARNOLD WALKER,
Chairman, Central Midwives Board.

London, S.W.1.

The M'Naghten Rules

SIR,—I would like to express my general agreement with Dr. Clifford Allen's protest (Nov. 27, p. 955). The M'Naghten rules may have been good psychology in 1843, but they are now merely metaphysics and very much outmoded metaphysics by modern standards. The fact evidently needs to be impressed on our colleagues of the prison service as well as the lawyers that psychology has progressed in the past hundred years.

It is generally the psychiatrist for the prisoner who takes the trouble to investigate his past history and elicit facts that so often have an essential bearing on the dynamics of the crime. If the prison doctor has not done the same, he is by so much less fully informed and is in a position to disavow any such facts on the ground that he has no direct knowledge of them. I suggest that it should be made a practice for the visiting psychiatrist to send a report of his findings to the prison doctor before the trial. It can be made clear then in court whether the prison doctor has taken the necessary trouble to confirm or confute these findings—whether, in brief, he is taking a modern attitude to the problem of crime or an 1843 attitude. Where an adequate investigation has not been made into the psychological background of a crime it simply means that at the trial the court is judging the prisoner on insufficient evidence.—I am, etc.,

FREDERICK DILLON.

London, W.1.

Nephritis in Textile Workers

SIR,—In connexion with Professor R. Platt's article on nephritis in textile workers (Nov. 15, 1947, p. 771), I wish to draw attention to certain statistical aspects which seem at variance with Professor Platt's otherwise excellent reasoning.

1. Professor Platt's argument takes as its starting point the discrepancy between the series of "Author's cases" (Table I—Deaths from Renal Disease) and the Registrar-General's figures for deaths from nephritis per 100,000 at risk in each age group in the years 1930–2. As the first shows a peak for the age group 15–24 and the second a marked increase after 45 years, he concludes that the latter must largely consist of deaths due to hypertension. The two series, however, are not comparable, since the first is one of deaths—or an age-case distribution—and a second one of death rates, that is the number of deaths relative to the persons at risk in each age group. The Registrar-General's figures for deaths from nephritis (not rates) among females for the period 1930–2, which can be compared with Professor Platt's series, is (calculated as a yearly average):

Ages:	15–24	25–34	35–44	45–54	55–64	65–69	70+
Deaths	462	276	452	1,128	1,917	1,266	2,703

From this the following facts emerge. (1) Both series show a peak in the region 16–24, and the Registrar-General's thus includes deaths from renal disease proper. (2) Professor Platt's series cannot be regarded as having been obtained from a representative sample of the population at risk in each age group, since it is almost completely deficient in the higher age groups. This is confirmed if his series for deaths from malignant hypertension is considered, the trend of which, according to Professor Platt, should be in good conformity with that of the Registrar-General. As can be seen, even that series is almost completely deficient in the higher age groups, and thus shows that the population from which Professor Platt's cases were drawn did not correspond in its age composition to that of the population at large.

To draw conclusions by comparing a non-random sample with a random sample would seem a somewhat hazardous procedure in a controversial matter like the present. Strictly speaking, however, the two series are not comparable for a more obvious reason, since Professor Platt's series is one for malignant hypertension only, whereas that of the Registrar-General evidently includes deaths due to benign hypertension. Had his series been one for total essential hypertension (benign and malignant) it might have shown the trend of the Registrar-General's.

2. Professor Platt then compares the number of deaths from nephritis among textile workers with those of the Registrar-General's social classes III and IV, with the result that he does not find a significant difference in the frequency of such deaths.

The proper background, however, against which to judge the incidence of nephritis among textile workers is not the artificial classification into social groups but the incidence in the total population, of which textile workers are supposed to form a random sample. This is the procedure adopted by the Registrar-General in calculating standard mortality ratios. That is, we must use the series in Table II of Professor Platt's paper as the background against which to judge the significance of deaths among textile workers as given in Table IV. Since Table II is one of death rates, the data of Table IV must be transformed into rates for the purpose of comparison. We then obtain (for males) the following series with which to compare the top row of Table II.

Deaths from Nephritis per 100,000 at Risk in Each Age Group

Ages:	15–24	25–34	35–44	45–54	55–64	65–69	70+
Textile Workers: Deaths per 100,000	21	14	20	111	160	645	313
All males: Deaths per 100,000	15	9	18	49	108	389	389

We now see that the two series, though similar in trend—since reflecting the mortality due to one and the same group of diseases—still show an increase in the death rate for textile workers *in all age groups* except the last. This, according to Professor Platt's reasoning, must be interpreted as an increased risk for dying from malignant hypertension in the higher age groups, but also as an increased risk for dying from renal disease in the lower age groups. It would thus seem—adopting Professor Platt's theory of essential hypertension as a hereditary disease for textile workers—that such workers in addition to being through their hereditary make-up prone to malignant hypertension are also at an increased risk of falling a prey to renal disease through environmental factors.—I am, etc.,

G. HERDAN.

Bristol.

Medical Films

SIR,—Mr. Malcolm Donaldson (Nov. 27, p. 955) has drawn attention to a point most worthy of consideration. In the past, considerable lip service has been paid to surgical teaching films, but who or what they teach has never been made very clear. Both in this country and in the United States medical film catalogues are studded with titles of surgical-technique films. These films vary in length from a few minutes to about an hour, depending very largely on whether editing has been severe or comparatively non-existent. Yet the proportion of this collection which enjoys a general distribution must be very small indeed. In searching for the reason for this it might regrettably be concluded that too many films of this type are dependent for support on the spoken commentary of an individual surgeon or else are produced expressly to demonstrate surgical prowess.

Be this as it may, no quarrel can be sought, for public money is rarely involved and, to use an actual quotation, "medical film producers have to live." It is, however, disturbing to realize that the mere introduction of explanatory diagrams or shots made away from the tense atmosphere of the theatre may do much to clarify obscure points and can be effected without great additional expense. Footage of film alone will not teach.—I am, etc.,

PETER HANSELL,
Director of Medical Photography,
Westminster Hospital Medical School.

London, S.W.1.

H 11 in Malignant Disease

SIR,—Regarding the case reports quoted by Mr. J. H. Thompson and Dr. G. J. W. Ollerenshaw (Nov. 6, p. 835), Case 4 corresponds very closely to a patient who was under my care from 1944 to 1946. There is, however, one important detail omitted from the report—namely, that his right leg was amputated through the thigh on Jan. 1, 1945. As this is a factor of fundamental importance in his treatment and the radiographic shadows in the chest were never proved to be metastases, I think for the sake of accuracy that these facts should be stated. The account as given might lead the reader to infer that the osteosarcoma of his tibia had benefited by the treatment.—I am, etc.,

Bristol. R. MILNES WALKER.

POINTS FROM LETTERS

Fibrositis

Dr. J. B. PRIMMER (Aberdour, Fife) writes: May I be allowed to add my testimony to the fact that fibrositis is a reality and not a chimera? As the result of an accidental wetting of the left leg I have had recurrent attacks in wet weather. Palpable nodules are now present above the left patella, and no doubt if they were examined microscopically—which heaven forbid!—they would confirm the findings of the late Professor Stockman, of Glasgow University, relative to fibrositis. But as the nodules give me no concern I leave well alone. The treatment I found efficacious was the application of iodine and methyl salicylate together with infra-red therapy.

Shortage of Nurses

Dr. G. D. LAING (Limpsfield, Surrey) writes: It is no use building new hospitals and restoring old ones if you cannot get the staff to run them. If we cannot get enough nurses to work our hospitals and infirmaries for old people the new Health Service will break down. The reason for this shortage is that nurses, especially probationers, are grossly underpaid and very hard worked. The nurse is paid distinctly less than half the amount of a domestic servant and has longer hours, harder work, and less freedom. Typists, shop assistants, and telephone girls get much higher wages than nurses and much more freedom. Can you wonder that girls do not go in for nursing? They cannot afford to.

Procaine Penicillin

Dr. T. STRATON (Fordingbridge, Hants) writes: I was interested to read the article by Drs. P. F. Jones and R. A. Shooter (Nov. 27, p. 933) about the use of procaine penicillin. I have used it fairly extensively in general practice and found it satisfactory, though it was not possible to estimate blood concentrations. In a few cases I felt that the procaine penicillin alone was not satisfactory, so in some I tried adding sodium penicillin in distilled water—200,000 units to the 300,000 units of the oily procaine penicillin. Another alternative I tried was to give penicillin and sodium citrate tablets (containing 100,000 units of penicillin) three-hourly as well as the procaine penicillin. In both these methods results were satisfactory and no untoward reactions were seen. My numbers were extremely small—two in each of these groups—and so obviously do not prove anything. But I bring this to your notice in the hope that someone with the necessary facilities might consider it worth while to test the methods out scientifically. A proved satisfactory method of giving penicillin in general practice would be a great advantage.

Sodium Sulphate for Bleeding Piles

Dr. T. PIRES (Weston-super-Mare) writes: I was very much interested in reading of Dr. Bertha Henly's experience (Nov. 27, p. 959) with saturated sodium sulphate solution, and would therefore pick out two from several conditions with oedema and inflammation where it has proved beneficial. In the first instance I use it invariably for even slight oedema in sprains of joints, though Dr. Lyth's theory of how it works does not account for any effect produced through the unbroken skin. Here it is remarkable how both swelling and pain are rapidly relieved. It is best, however, to continue with the dressing for a few days, as this in some way ensures that the joint is not left weak and does not "give way," as is so often the complaint. The other instance was the case of a very difficult extraction of a tooth with an apical abscess. This was effected actually in two one-hour sessions in the dentist's chair. In spite of local penicillin, 10,000 units, the cavity in the lower jaw remained unhealed and extremely painful. A pad of the saturated solution was applied for a quarter of an hour and then for three-quarters of an hour. The relief from pain commenced subsequently, and at the next visit the dentist discharged the patient, who nevertheless continued the applications till the gum healed over completely.

Obituary

ARTHUR ROBINSON, M.D., LL.D., F.R.C.S.

Professor Arthur Robinson, who had been living in retirement in the South of England, died at Eastbourne on Dec. 3 at the age of 86. He had been professor of anatomy at Edinburgh University from 1909 to 1931.

Born in Manchester, he received his medical training at Edinburgh University, where he graduated M.B., C.M. with honours in 1883. He at once turned his attention to anatomy and was appointed demonstrator by Sir William Turner. Two years later Arthur Robinson returned to Manchester as demonstrator in anatomy at Owens College, and in 1888 he became senior demonstrator there and in due course lecturer in the Victoria University under Professor A. H. Young, with whom he collaborated in several pieces of research. In 1896 Robinson was appointed the first whole-time lecturer in anatomy at the Middlesex Hospital Medical School, where he followed Bland-Sutton. Having thus established his reputation as a rising young anatomist, he moved at short intervals to the chairs of anatomy at King's College, London (1900), the University of Birmingham (1904), where he was also sub-dean of the Faculty of Medicine, and finally to Edinburgh in 1909, where he succeeded D. J. Cunningham. In all these posts he displayed his talent for organization and his powers as a teacher, while continuing to carry out important researches in his chosen field of comparative embryology.

Robinson's first paper, "On the Position and Peritoneal Relations of the Mammalian Ovary," appeared in the *Journal of Anatomy and Physiology* in 1887; other papers followed, and in 1890 he received a Gold Medal for his M.D. thesis on "The Development of Two Rodents." His best-known work, and that by which his reputation will stand, is on the "Comparative Anatomy of the Placenta," embodied in three lectures which he delivered in 1903 as Hunterian Professor of the Royal College of Surgeons. As early as 1888 Robinson was collaborating with A. H. Young in morphological studies, including work on the development of the vascular system; and in 1902 they were joint contributors to the first edition of the *Textbook of Anatomy*, edited by D. J. Cunningham; they were responsible for the sections on general embryology and on the vascular system. Robinson himself succeeded Cunningham as editor of this well-known textbook and also of the *Manual of Practical Anatomy* and was responsible for the production of several editions of each. His editorial work no doubt took up a great deal of his time, but he continued to pursue the developmental problems that interested him. He did further work on the formation of the ovarian follicle, the presence of lipoids in mammalian ova, and the development of veins—the last a subject on which he was recognized as a great authority.

From 1920 to 1922 Professor Robinson served as president of the Anatomical Society of Great Britain and Ireland, which he had joined in 1889. In 1920 he was Struthers Lecturer of the Royal College of Surgeons of Edinburgh, of which he became a fellow in 1912, and took as his subject "Pre-natal Death." In 1924 he was elected F.R.C.S., and the Royal Society of Edinburgh awarded him the Neill Prize for the period 1925–7 for his "Contributions to Comparative Anatomy and Embryology." He was a Fellow of King's College, London, and he received the LL.D. from the University of Edinburgh on his retirement. Professor Robinson's preparations for retirement in 1931 were clouded by serious eye trouble which gave rise to much anxiety. But his friends were relieved to learn that a good measure of sight had been spared to him. His resilient spirit enabled him to overcome the disability that remained; and in these later years of his long life he quietly enjoyed the general reading for which during his very active professional days he had always regretted that he had so little time.

Professor Robinson married Emily, third daughter of John Baily, in 1888; and in this year of their diamond anniversary we extend our sympathy to Mrs. Robinson on the loss she has sustained.

F. B. PARSONS, M.D., F.R.C.P.

Dr. Frank Bett Parsons was at work and in full vigour until within a few days of his untimely death, at the age of 46, on Dec. 4 after a very short illness.

He was born at Chatteris, Cambridgeshire, and from Wellingborough he entered Downing College, and again returned to Cambridge after qualifying in 1925 at St. Bartholomew's Hospital. He took the Cambridge M.B. in 1926, and proceeded M.D. in 1929, his thesis embodying work on the action of drugs, much of which was carried out under the late Professor W. E. Dixon in the pharmacological laboratory. A few years in general practice, one at Guildford, preceded his entry into consulting medicine on his appointment to the staff of Addenbrooke's Hospital in 1938. But Parsons had managed to keep in touch with the pharmacological aspects of medicine, and he published papers on "avertin," on anaesthesia, and on mechanical laxatives. Parsons had an original mind and the faculty of an alert curiosity which made him seek out things for himself, never content to accept a fact or theory simply because it had the weight of authority behind it. His energy and ability soon brought their reward in other appointments, notably as honorary physician to Papworth Village Settlement and as liaison officer between the hospital and the university, a new departure which foreshadowed the closer and happier linkage which now exists. He was elected a fellow of the Royal College of Physicians in 1946.

Dr. Parsons was a keen and active member of the Cambridge Medical Society and of the B.M.A., and was secretary of the local Cambridgeshire and Huntingdonshire Branch for several years. He was also vice-president of the Section of Neurology at the Annual Meeting in Cambridge only last July. Though neurology had become increasingly his specialty, he remained always a general physician. As a successful consulting physician in a big rural area he found the demands on his time and energy left no leisure for other pursuits, and medicine was in a sense his great hobby. Parsons had a gentle manner which came of his personal modesty and kindness, and his services were always available to his colleagues and a large circle of general practitioners in country and town who had grown to rely on his willingness, sound judgment, and even temper. He was interested in people and had a retentive memory for details of family and face, and no doubt this was one clue to the great esteem and affection in which he was held. But he was also a fighter, and nothing roused him to action more certainly than the bureaucratic touch. In it he saw the interests of patient and doctor alike threatened, or forgotten. All who knew him, and they are many, will feel his loss deeply. No one can quite fill his place in the community, and the sympathy of his colleagues and friends will be extended to his widow and two children.

S. H. P. writes: Ten days before his untimely death Frank Parsons told me that he was a sick man. With a full realization of the inevitable outcome of his illness he put his affairs in order and waited calmly and with fortitude. Parsons will long be remembered in Cambridgeshire, his own county. His loyalty to his colleagues was absolute, his kindness to patients proverbial. As a consultant he never lost sight of the difficulties and problems of the general practitioner, and his advice, always helpful and greatly sought, was invariably tempered with sound common sense. We all deplore the loss of a good friend.

A former pupil writes: Dr. Parsons's short illness and early death will come as a tragic blow to his hosts of friends, both medical and lay. He held a unique position as consulting physician in Cambridge and for fifty miles around. He had a prodigious memory for people and places, and was a man of fearless independent thought, like Hughlings Jackson and Sir James Collier, whom he often quoted. He had an intimate knowledge of neurology and pharmacology, but his students learnt most from his philosophy of life and from his perfect handling of his patients and their relatives. His students of many generations will sorely miss him.

Dr. RICHARD VINCENT BREWS died in the London Hospital at the age of 75 on Oct. 28. After qualifying at the Royal College of Surgeons, Dublin, in 1898, he took up practice in North Woolwich, and had worked there ever since until six weeks before his death. Dr. Brews had been a member of the B.M.A. for the past thirty-seven years and took a leading part in all local medical matters. He was a member of both the East Ham Panel Committee and the East Ham Insurance Committee from their constitution in 1921 until 1948. He was made chairman of the Panel Committee in succession to the first holder of that office, Mr. J. W. Hill, and was elected chairman of the Insurance Committee in 1937. His tact and ability, allied to his thorough knowledge of the National Health Insurance Act, made him an invaluable member of both committees and earned for him the admiration of both his medical and lay colleagues. He served as police surgeon to the "K" Division of the Metropolitan Police for over fifty years, and was a justice of the peace for the County of London. When the blitz came Dr. Brews had reached retiring age. Rather than retire he stayed to face its dangers and its rigours. In 1943 he was attacked by a grave illness, but he carried on his work while under treatment and fought his way to complete recovery. His courage and fortitude in these hard years were a shining example to the neighbourhood. Dr. Brews had a cultured mind, a clever pair of hands, and an immense capacity for work. He was receptive of new ideas to the end and kept abreast of all advances in medicine. If there were an hour or two of leisure in the day he retired into his little workshop to amuse himself at woodwork or in mending machinery. His other hobbies were fishing and shooting. He leaves a son, Alan, who is gynaecologist to the London Hospital, and a daughter, Mrs. Barlow, who has exhibited paintings at the Royal Academy. His patients, long used to an ideal blend of kindness and firmness, will miss him sadly; so, too, will his friends, his medical colleagues, and all who knew him.

Medical Notes in Parliament

The Dangerous Drugs Regulations, 1948, and the Raw Opium Regulations, 1948, were presented to Parliament on Dec. 8.

National Service

Speaking on Dec. 6, during the Committee stage of the National Service Bill, Mr. A. V. ALEXANDER said young men liable for whole-time service for eighteen months after Jan. 1 would be able, as at present, to apply for deferment to complete their studies before call-up. Their application would generally be granted. If they chose to do their military service first they could ask to be called up early so as to be out in time to go to the university in the appropriate October at the beginning of the university year. Later in the same debate Mr. ISAACS said that normally there was about three months between announcement of a registration and earliest call-up.

Mr. HUGHES pointed out that in the United Kingdom in 1946 cases of venereal disease were 7.7 per 1,000 strength. In the B.A.O.R. the proportion rose to 30.4 for the first quarter, 41.8 for the second quarter, 44.6 for the third quarter, and 41.8 for the fourth quarter.

Mr. EMRYS HUGHES quoted an estimate in a Free Church Council report that 80% of the Army personnel on the Continent was supplied with prophylactics.

Mr. SHINWELL said that, provided proper care was taken of the welfare of young soldiers in Germany and that they were engaged in arduous military training, they were all right.

Ceiling for Dentists

Replying on Dec. 9 to Mr. MCGHEE, Mr. BEVAN declared that he was undertaking with the dental associations a full review of the present translation of the Spens Committee into fees for services. Meanwhile, as it was obvious that some dentists earned far more than that Committee ever contemplated, he was adopting a temporary arrangement whereby fees were reduced by half after a dentist reached an income of £4,800 gross—or £1,000 in excess of the point at which the Spens Committee said the risk of bad dentistry began. Mr. Bevan recalled that doctors already had a limit, in the number of patients allowed on their lists.

Mr. BESWICK on Dec. 9 asked Mr. Bevan, in view of the grave shortage of dental practitioners, to see that the services of qualified dental practitioners who came to this country before 1939 were fully utilized.

Mr. BEVAN said that the admission of foreign-trained dentists to the *Dentists' Register* was under statute a matter entirely for the General Medical Council.

On the same date Dr. SEGAL asked how many dentists with foreign qualifications had been refused registration in this

country. Mr. BEVAN said there were approximately 1,200 such cases since 1935 (inclusive), when foreign dentists began to enter this country from the Continent in appreciable numbers. He explained that the Minister of Education had no objection to the employment in the School Dental Service of any foreign dentists provided that they were legally entitled to practise dentistry in this country.

Mr. Bevan further explained that the conditions on which foreign trained dentists could practise in this country were prescribed by the Dentists' Acts. The duty of ensuring that these conditions were fulfilled rested with the General Medical Council.

In reply to a further question Mr. Bevan said that of the sum of £4,750,000 paid or owing to dentists for work completed under the National Health Service up to about 40% was in respect of new dentures.

If and When

On Dec. 9 Mr. JOYNSON-HICKS inquired whether Mr. Bevan knew that medical specialists were, under the operation of the National Health Scheme, limited to making a total of twenty-five visits per quarter upon patients in a given area.

Mr. BEVAN replied that there was no limit on visits. Remuneration had a provisional ceiling for each quarter while longer-term arrangements—which would date back—were being worked out. The question of treatment of patients when a specialist had filled his schedule would be considered if and when it arose.

Dr. Voeller's Claims

Dr. SEGAL asked on Dec. 9 how many British subjects had been enabled to travel to Kassel to undergo the Voeller treatment for Parkinson's disease.

Mr. BEVAN said that no British subjects had so far been permitted by the United States authorities to travel to Germany for treatment by Dr. Voeller. He was arranging a full investigation into Dr. Voeller's claims. If these were substantiated he would see what could be done to ensure that the treatment was available to all sufferers from the disease.

Medico-Legal

NULLITY AFTER ARTIFICIAL INSEMINATION

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

In the nullity suit *R. E. L.* v. *E. L.*, tried before Mr. Justice Pearce in the Divorce Division on Nov. 30 it appeared that the parties were married in 1942, the wife being 25 and the husband 31. For the first three years the husband made no attempt to consummate the marriage, saying that it was difficult to have children during the war. He also found it difficult to talk about sex. In June, 1945, the wife made him face the question, and he was never able to consummate the marriage. In the autumn of that year the wife consulted a doctor for bad health and nervous trouble. The doctor impressed the seriousness of the position on the husband and tried to persuade him to undergo psychotherapy, but the husband was unwilling. The wife was anxious to have a child and discussed artificial insemination with him. At the end of 1946, under expert guidance, she tried to inseminate herself with the husband's semen but failed. In December, 1947, the husband visited a psychologist, at whose suggestion the wife had an artificial insemination from the husband. At the end of January she decided to leave him, not knowing she was pregnant, and a child was born in September. She petitioned the court for a decree of nullity on the ground of the husband's incapacity to consummate the marriage. The husband did not contest this allegation, but pleaded that by accepting artificial insemination his wife had approbated the marriage, and that to grant a decree of nullity and thus make the child illegitimate would be against the public interest.

Mr. Justice Pearce said in his judgment that the cause of the husband's incapacity seemed to be a deep-seated neurosis. The wife was a perfectly honest woman who had tried hard to make a success of the marriage under difficulties that involved considerable strain and humiliation. The marriage had broken down hopelessly and she could never go back to it. There had just been a chance that the birth of a child might have overcome the husband's psychological trouble or have resigned the wife to an unnatural marriage. There was no lack of sincerity on her part: she had not willingly acquiesced in an impotent marriage. He saw no hope of happiness from keeping the couple married. The future held better augury for the child if he granted a decree than if it were brought up by an embittered wife, tied up for life to a marriage that had never been a real marriage. That the child should be made illegitimate was most regrettable, but sons were not now judged by the errors of their parents. The few who would know of the illegitimacy would probably also know the facts, and there was nothing that reflected any dishonour on either of the parents or the child. He therefore granted a decree of nullity.

The question of the illegitimacy of such a child is new, for without artificial insemination a child cannot be born if the husband is impotent. It should be carefully noted that the learned judge did not decide, and indeed had no power to decide, that this child was illegitimate. All he did was to state that in his opinion the effect of his decree was to render the child illegitimate. As one legal correspondent pointed out[1] this does not imply that a child conceived by artificial insemination is illegitimate if the marriage is valid. Moreover, it is by no means certain that the judge is right. Another legal opinion[2] was that the child was born of parents who had gone through the marriage ceremony and were entitled to go through it, and that it therefore could not be illegitimate. According to the same source, the mother's solicitors point out that, assuming she has already obtained a birth certificate giving the name of the husband as father, the certificate will remain, showing the child as legitimate. She has given no wrong information. The Ministry of Health is quoted as saying that a correction to a birth certificate is made only where false information has been given in the first place, and the Registrar-General as saying that the case has no precedent and that the information was apparently correct at the time it was given. The court could be moved for a declaration of legitimacy on behalf of the child, but not—except in the course of some other matter, such as a claim to succession to property—for a declaration of illegitimacy, and the present decree of nullity does not operate as such a declaration.

There is as yet no legislation on artificial insemination, but the law contains an interesting analogy within the provision allowing a marriage to be annulled for wilful refusal of one of the parties to consummate it. This is a new ground, introduced by Herbert's Act in 1937, and of course it brought as its consequence the possibility that a marriage might be annulled even though a child had been conceived before the parents had married and had been rendered legitimate by their marriage. To protect such a child from being made illegitimate again by the nullity, Parliament expressly enacted in Herbert's Act that the decree should not have that effect. Undoubtedly in justice the same principle should operate here, and perhaps such provision will be made if and when Parliament is called upon to legislate for artificial insemination. Meanwhile, with due respect to the learned judge, the question of the child's legitimacy remains open.

In the House of Commons on Dec. 7 Mr. Driberg asked the Prime Minister if he would consider the appointment of a Royal Commission to examine the social and legal implications of the practice of human artificial insemination, including A.I.(D.), with special reference to the problems of legitimacy and inheritance involved. Mr. Attlee replied that he would prefer first to see the general Report of the Royal Commission on Population, which was said to be in the final stages of drafting. It seems clear from the statement of the Prime Minister and a previous statement given on behalf of the Attorney-General that any question of legislation on the subject of artificial insemination will have to await the appearance of the long-awaited Report of the Royal Commission on Population. On the other hand Mr. Ede announced on Dec. 9 that in consultation with the Attorney-General he was considering the introduction of a Bill to legitimize the children of parents who had gone through a marriage which was later annulled.

[1] *Daily Telegraph*, Dec. 1.
[2] *Daily Express*, Dec. 1.

No 48

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Nov. 27.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county) (c) Scotland. (d) Eire. (e) Northern Ireland. *Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for:* (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland. A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	36	5	16	1	—	44	3	22	2	—
Deaths		—	—				1	—		
Diphtheria	141	8	37	4	6	216	30	52	20	10
Deaths	2	—	2	—	—	3	—	—	1	—
Dysentery	72	9	46	2	—	77	14	40	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	—	—	—	—	—	—	1	—
Deaths		1					1			
Erysipelas			40	12	4			37	8	—
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				37					45	
Deaths*	21	2	5	3	2	61	4	8	7	4
Measles*	8,547	127	197	53	66	2,772	121	337	190	23
Deaths†			—	—	—	1	—	—	1	—
Ophthalmia neonatorum	43	5	10	—	—	51	1	4	2	—
Deaths										
Paratyphoid fever	1	—	4 (B)	—	—	18	1	1 (B)	—	—
Deaths	—	—	—	—	—	1	—	—	—	—
Pneumonia, influenzal	716	63	5	1	2	567	31	7	4	33
Deaths (from influenza)‡	22	2	2	1	—	18	1	—	1	—
Pneumonia, primary	234	29	243	32	15		34	309	17	17
Deaths				8					5	
Polio-encephalitis, acute	5	—				3	1			
Deaths							—			
Poliomyelitis, acute	42	2	2	3	—	103	7	15	6	2
Deaths§	3	—					—			
Puerperal fever		—	9		—		3	10		—
Deaths										
Puerperal pyrexia‖	82	10	7	—	1	134	6	9	—	1
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,544	91	281	165	55	1,765	123	334	54	47
Deaths†			—	—	—	1	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	3	—	1	4	1	8	2	—	1	1
Deaths	1	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	2,747	162	120	52	16	1,513	105	57	28	6
Deaths	5	1	—	—	—	—	—	—	1	—
Deaths (0–1 year) Infant mortality rate (per 1,000 live births)	273	29	50	14	13	382	34	66	29	25
Deaths (excluding still-births)	4,847	779	631	180	120	4,711	721	646	185	156
Annual death rate (per 1,000 persons living)			12·7	11·3				13·4	11·7	
Live births	7,018	1139	861	327	231	7,891	1245	1009	431	201
Annual rate per 1,000 persons living			17·4	20·5				20·3	27·2	
Stillbirths	172	12	23			189	27	22		
Rate per 1,000 total births (including stillborn)			26					21		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Tuberculosis in the British Zone

According to the *Monthly Report* of the Control Commission for Germany, the death rates in the British Zone from pulmonary tuberculosis during the first six months of 1948 were less than those for the first half of 1947. These rates, calculated as annual rates per 10,000 of the population, were 6.54 and 6.8 in 1948 and 1947 respectively. It is two years since a large increase in the incidence of the disease was first reported, but the number of deaths has actually decreased, despite the arrival in the British Zone of a great many refugees and prisoners of war from the east suffering from advanced tuberculosis. This bears out the findings of the British Medical Research Council on tuberculosis in the British Zone—namely, that the increase reported by German doctors was a paper increase only, resulting from a revised scheme of reporting. The number of deaths from other forms of tuberculosis has also decreased. The annual rates per 10,000 of the population were 1.36 in 1948 compared with 1.7 in 1947.

The annual death rate for pulmonary tuberculosis in the British Sector of Berlin during the first half of 1948 was 12.7 per 10,000 of population compared with 18.3 for the similar period in 1947. With regard to other forms of tuberculosis there was no change in the number of deaths, which remained at 1.4 per 10,000 per annum for the first half of 1947 and 1948. In Berlin as a whole the death rate for tuberculosis is higher than in the British Sector, and although there has been a decrease during the past two years it is still higher than the rate in the British Zone.

Discussion of Table

In *England and Wales* increases were recorded in the notifications of measles 1,624, whooping-cough 67, and dysentery 23, and decreases for scarlet fever 291, acute pneumonia 16, and diphtheria 13.

The rise in the incidence of measles was mainly concentrated in the north, and only a slight increase occurred in the southern section of the country. The largest rises were Lancashire 492, Yorkshire West Riding 233, Lincolnshire 173, Derbyshire 142, and Staffordshire 104. Only small changes were recorded in the returns of whooping-cough; the largest were a rise of 42 in Cheshire and of 43 in Devonshire.

A decreased incidence of scarlet fever was recorded throughout the country; the largest falls were Lancashire 60, Yorkshire West Riding 46, Middlesex 35, and Staffordshire 23.

In contrast to the general trend of diphtheria a rise of 11 was recorded in Lancashire, partly due to an outbreak affecting 7 persons in Standish with Langtree U.D. Another local outbreak of diphtheria was in Glamorganshire, Merthyr Tydfil C.B. 8. The largest variation in the local returns of acute pneumonia was a decrease of 27 in Lancashire.

An outbreak of dysentery affecting 14 persons was notified in Glamorganshire, Pontardawe R.D. Other returns of dysentery were Lancashire 13, Essex 10, and London 9. The largest returns of acute poliomyelitis were Lancashire 4, Warwickshire 4, and Middlesex 3.

In *Scotland* increases occurred in the notifications of measles, 44, acute primary pneumonia 18, and whooping-cough 10, and there were decreases in diphtheria 21 and scarlet fever 44. Notifications of diphtheria in the city of Glasgow fell from 31 to 14. There were 8 fewer cases of dysentery notified from Glasgow, but an outbreak affecting 6 persons was notified in Greenock.

In *Eire* decreases were recorded in the notifications of measles 16, whooping-cough 16, scarlet fever 9, and diphtheria 7. An outbreak of whooping-cough with 11 notifications occurred in Tipperary, Nenagh R.D.

In *Northern Ireland* an increase of 14 was reported in the notifications of scarlet fever. Notifications of measles from Belfast C.B. were 12 in excess of the total of the preceding week.

Quarterly Returns for Scotland

The birth rate during the third quarter was 18.7 and was 0.1 below the average of the five preceding September quarters. The infant mortality was 40 per 1,000 registered live births and was 12 below the five years' average. Stillbirths were equivalent to a rate of 28 per 1,000 total births. The general death rate was 10.5 per 1,000 and was 0.1 below the five years' average. The death rate from all forms of tuberculosis was 66 per 100,000, and that from respiratory tuberculosis was 59; these rates were respectively 3 below and 6 above the average rates for the third quarters of the five preceding years. Only 51 deaths were attributed to the principal epidemic diseases

and the rate was only half of the five years' average. These deaths included 17 from whooping-cough, 16 from influenza, 8 from diphtheria, and 6 from cerebrospinal fever.

Week Ending December 4

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,527, whooping-cough 2,562, diphtheria 131, measles 8,562, acute pneumonia 897, cerebrospinal fever 33, acute poliomyelitis 51, dysentery 64, paratyphoid 10, and typhoid 4.

Medical News

Vice-Chancellor of Hong Kong University

Colonel Lindsay Tasman Ride has been appointed Vice-Chancellor of the University of Hong Kong.

An Australian Rhodes scholar, Colonel Ride graduated in medicine at Oxford University in 1927 after receiving his clinical training at Guy's, and proceeded D.M. in 1939. He has been professor of physiology at the University of Hong Kong since 1928.

Thomas Percy Legg Memorial Lecture

The first Thomas Percy Legg Memorial Lecture entitled "Principles of Surgery Exemplified in the Story of Hare Lip and Cleft Palate" was delivered by Mr. Denis Browne on Dec. 3. The lecture was founded this year in memory of Thomas Percy Legg, C.M.G., M.S., F.R.C.S., surgeon to King's College Hospital from 1910 to 1930, and is given annually on a surgical subject on the invitation of the Council of King's College Hospital Medical School.

Gastro-enterological Prize

The National Gastroenterological Association will award $100 and a certificate of merit for the best unpublished contribution on gastro-enterology or allied subjects. Certificates will also be awarded to those physicians whose contributions are deemed worthy. Contestants residing in the United States must be members of the American Medical Association; those residing in foreign countries must be members of a similar organization in their own country. The winning contribution will be selected by a board of judges, and the award is to be made at the Annual Convention Banquet of the National Gastroenterological Association in October of 1949. The Association reserves the exclusive right of publishing the winning contribution and those receiving certificates of merit in the *Review of Gastro-enterology*. All entries should be limited to 5,000 words, be typewritten in English, prepared in manuscript form, submitted in five copies accompanied by an entry letter, and must be received not later than April 1, 1949. They should be addressed to the National Gastro-enterological Association, 1819, Broadway, New York, 23, N.Y.

Postgraduate Training in Psychiatry

The South-West Metropolitan Regional Hospital Board, with the requirements of the English Conjoint D.P.M. in mind, is preparing a training course in psychiatry on lines not hitherto attempted in this country. Every six months six registrars will be accepted for training in the Board's hospitals, and each of them will pass through three hospitals over a period of two years. During the first phase of nine months two trainees will go to each of three hospitals close to London and to each other. At Belmont (Sutton) Hospital clinical material is largely psychoneurotic, and there is a substantial industrial unit and a department of electroencephalography. At St. Ebba's Hospital early psychotic cases are admitted, and plans are complete for the establishment of departments of electroencephalography and neuropathology. Netherne is a progressive modern hospital, laying special emphasis on clinical research. These three hospitals will pool resources, so that wherever the trainee is sent he will have an opportunity of studying the work of all three. The staff of the teaching hospitals will participate in formal teaching, and the necessary instruction in neurology will be completed before passing on to the second phase.

Graylingwell Hospital, St. James Hospital, Portsmouth, and Warlingham Park Hospital will provide the training for the second period of nine months. These hospitals offer comprehensive mental health services, with a wide range of community contact. At this phase a measure of clinical responsibility will be undertaken under supervision, and the trainee will fit into the general framework of the hospital staff so far as possible. Tuition in child psychiatry, visits to courts, prisons, and approved schools, and practical experience of community services will be arranged during this period. The last six months before taking the D.P.M. will be spent in a mental deficiency institution—the Fountain Hospital, Botleys Park, and the Manor. For the first year a salary of £700 will be offered, with an increase to £800 during the second year. Experience in a general hospital will be obligatory, and preference will be shown to those who have had six months' experience in mental hospitals as house-physicians and who have decided to specialize in psychiatry.

Training for Ward Sisters

King Edward's Hospital Fund is about to open a staff college in South Kensington to which State-registered nurses may come for short courses in preparation for ward sisters' posts. If the experiment is successful it is hoped that it will be followed elsewhere. The staff college is under the general guidance of a committee of the Fund, and a principal, warden, and other staff have been appointed. The courses will be of four months' duration and will be open in the first instance to nurses seconded for the purpose by hospital management committees and boards of governors in the four metropolitan regions. The first will be held early in 1949, and subsequent courses will be at four-monthly intervals. There are no fees, and the cost of tuition and residence is being defrayed by the King's Fund. The scheme has the full support and active interest of the Ministry of Health. Inquiries should be addressed to the Secretary, Nursing Recruitment Service, King Edward's Hospital Fund, 21, Cavendish Square, London, W.1.

British Council Scholarships

Some 60 British Council scholarships out of a total of 359 new awards and extensions for the academic year 1948–9 have been awarded to scholars studying medical subjects. The scholarships are awarded to overseas graduates or others of like status to enable them to undertake a year's specialist study at a British University, college, hospital, or other educational institution.

New Haematological Journal

Acta Haematologica is a new journal published in Switzerland by S. Karger, of Basle. It prints articles in English, French, and German, each with a summary in all three languages. The English editor is Dr. F. Rosenthal, of Leicester. The journal will publish original articles on haematology as well as surveys of the specialty and book reviews.

Medical Golf

At the annual general meeting of the London Irish Medical Golfing Society held on Nov. 18 Dr. J. E. Ambrose was elected president and Dr. S. C. Morrow captain for the year 1949.

National Service

The Ministry of Labour reports that 299,121 medical examinations were carried out in 1947 on men and women volunteering or called up for National Service; 117 men were prosecuted for refusing to submit to medical examination. The Nursing Appointments Offices placed 10,534 men and women in whole-time nursing posts and 2,446 in part-time nursing posts. At the end of the year there were 2,488 vacancies for men and 29,622 for women. At the middle of December, 1947, there were 846,000 disabled persons voluntarily registered under the Act of 1944; most of them were in employment. During the year 6,822 disabled men and women completed vocational training courses.

Wills

Professor Daniel Dougal, of Manchester, left £31,312. He left his microscope and all medical books to the Victoria University, Manchester, for the use of the department of obstetrics. Dr. Kenneth William Mackie, of Sarisbury Green, Hants, left £11,281; Dr. William Dawson Galloway, of Huddersfield, left £15,028; and Dr. John Alexander Watt, of West Runton, Norfolk, left £13,666. Dr. Watt bequeathed £200 to Aberdeen University "in appreciation of the scholarship awarded to me when a student" for a medal or prize in preventive medicine.

COMING EVENTS

Health Education

The Ling Physical Education Association will hold a conference on "Health Education in Schools" from Dec. 29, 1948, to Jan. 1, 1949, at Chelsea Polytechnic, Manresa Road, London, S.W.3. It is open to members of the Ling Association and of the Association of Women Science Teachers. Information may be obtained from the Ling Physical Education Association, Hamilton House, Bidborough Street, London, W.C.1.

Congress of Otolaryngology

The 4th International Congress of Otolaryngology will be held in London on July 18–23, 1949. Those wishing to attend the congress should apply not later than March 1, 1949, to the secretary, International Congress of Otolaryngology, 45, Lincoln's Inn Fields, London, W.C.2.

International Veterinary Congress

The 14th International Veterinary Congress will be held at Central Hall and Church House, Westminster, on Aug. 8–13, 1949. The programme will be issued later. Information may be obtained from the organizing secretary, 10, Red Lion Square, London, W.C.1.

SOCIETIES AND LECTURES

Monday

HUNTERIAN SOCIETY.—At Talbot Restaurant, 64, London Wall, E.C., Dec. 20, 7 for 7.30 p.m., dinner. 8.30 p.m., discussion: *"Toxic Jaundice,"* to be opened by Professor John McMichael and Dr. Alice M. Stewart.

Tuesday

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At Edinburgh Royal Infirmary (West Medical Lecture Theatre), Dec. 21, 5 p.m. *"Nutrition in Europe During the War and After,"* by Dr. A. P. Meiklejohn.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—Dec. 21, 5 p.m. *"Cutaneous Reticuloendothelioses,"* by Dr. F. Ray Bettley.

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Street, London, W.C., Dec. 21, 11 a.m. *"Aetiology and Diagnosis of Gonorrhoea,"* by Dr. W. N. Mascall.

Wednesday

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Street, London, W.C., Dec. 22, 11 a.m. *"Pathology of Gonorrhoea,"* by Dr. A. H. Harkness.

Thursday

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Street, London, W.C., Dec. 23, 11 a.m. *"Signs, Symptoms, and Asymptomatic Carrier State of Gonorrhoea,"* by Dr. A. H. Harkness.

APPOINTMENTS

Dr. S. L. A. Manuwa has been appointed Deputy Director of Medical Services in Nigeria.

BURNETT, J. S. G., M.D., D.P.H., Medical Officer of Health, Preston.

CARTER-LOCKE, H. B. C., M.B., B.S., D.P.H., Deputy Medical Officer of Health, Bromley, Kent.

FREEMAN, P., M.B., Ch.B., D.P.H., Deputy Medical Officer of Health, Chatham

KAHN, J. H., M.D., D.P.M., Psychiatrist, Child Guidance Clinic, Huddersfield.

LAWRENCE, I. B., M.B., Ch.B., D.P.H., Assistant Medical Officer for Dorset and Medical Officer of Health, Portland.

MENON, U. K., M.B., B.S., D.T.M., Resident Medical Officer, Oakwood Hall Sanatorium, Rotherham.

NEVIN, MARY E., M.D., D.P.H., D.C.H., Medical Officer, North London Region, Ministry of Pensions.

ROBINSON, MARGARET M. F., M.D., D.P.H., School Medical Officer, Kettering.

RONALD, JAMES, M.D., F.R.C.P.Ed., Consultant Physician, Scottish Northern Regional Hospital Board.

TAYLOR, G. H., M.D., D.P.H., Deputy County Medical Officer of Health and Deputy School Medical Officer, Warwickshire.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Franklin.—On Dec. 8, 1948, to Margaret, wife of Dr. C. B. Franklin, a son.

Tighe.—On Nov. 30, 1948, at Queen Elizabeth Hospital, Birmingham, to Nora (née Cregan), S.R.N., S.C.M., wife of Dr. Robert Tighe, of 101, Ashted Row, Birmingham, a daughter—Maureen Elizabeth.

MARRIAGES

Griffiths—Meigh.—On Nov. 6, 1948, at St. James's Church, Bradford, Alan Lampen Griffiths, M.B., B.Ch., B.A.O., D.C.H., of Larne, to Gladys Audrey Meigh, B.A., M.B., Ch.B., D.C.H., of Bradford.

Mumford—Mackenzie.—On Nov. 27, 1948, at St. John the Evangelist's Church, Blackheath, Wilfred Bardwell, son of Mr. and Mrs. E. B. Mumford, of Boscombe, to Ruth, younger daughter of Mr. and Mrs. J. A. Mackenzie, of Blackheath.

DEATHS

Blayney.—On Dec. 4, 1948, at 31, Tudor Drive, Watford, William Blayney, M.R.C.S., L.R.C.P.

Bradley.—On Dec. 3, 1948, at Greville House, Raynes Park, Wimbledon, S.W., James Edmund Campbell Bradley, M.B., B.Ch., aged 84.

Callender.—On Dec. 2, 1948, as the result of a cycling accident, Constance Muriel Callender, O.B.E., L.R.C.P.&S.Ed., L.R.F.P.S.Glas., of Kingsdown, Deal, late of Minia, Egypt.

Davis.—On Dec. 2, 1948, at White Lodge, Sonning-on-Thames, John James Davis, M.R.C.S., L.R.C.P., aged 43.

Durbridge.—On Dec. 3, 1948, at Newport Pagnell, Henry Durbridge, M.R.C.S., L.R.C.P., formerly of Matlock, Derbyshire, aged 77.

Henderson.—On Dec. 1, 1948, at 83, Hepburn Gardens, St. Andrews, Fife, George Edward Walker Henderson, L.R.C.P.&S.Ed., L.R.F.P.S.Glas.

Horsley.—On Dec. 2, 1948, at Hackney Hospital, London, E., Lancelot Horsley, M.R.C.S., L.R.C.P., of 27, Gloucester Place, London, W.

McKenna.—On Dec. 2, 1948, at Greystones Nursing Home, Prestwick, Fergus McKenna, M.B., C.M.Glas., of Doune, Alloway, Ayr.

Stewart.—On Dec. 4, 1948, in a London Hospital, Sir Edward Stewart, K.B.E., M.D., of Bullards, East Grinstead, Sussex, late vice-chairman B.R.C.S., aged 91.

Turner.—On Dec. 9, 1948, James William Turner, M.R.C.S., L.R.C.P.

Wilson.—On Nov. 30, 1948, at Linton, Cambridge, Hugh Mundle Wilson, M.B., Ch.B.Glas., aged 63.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Vitamin B Supplements

Q.—*There seems to be an increasing tendency to consider that children of 1 to 5 years are not adequately fed unless their normal diet is supplemented by proprietary preparations containing vitamins. Taking the vitamin-B group, could you please advise on the following points: (1) Is any reliable information available regarding the needs of normal children aged between 1 and 5? (2) Is there adequate evidence that such children run any risk under present conditions of vitamin-B shortage? (3) Is there evidence that a child already receiving an adequate amount of vitamin B in a normal mixed diet derives benefit from additional intake of vitamin B (apart, of course, from the few additional calories)?*

A.—(1) The "Recommended Dietary Allowances" published by the Food and Nutrition Board of the National Research Council, U.S.A. (Washington, D.C., revised 1945), include the following figures:

	Vitamin B_1	Riboflavin	Nicotinic Acid
	mg.	mg.	mg.
Children aged 1 to 3 ..	0·6	0·9	6
" " 4 to 6 ..	0·8	1·2	8

The League of Nations "Report on Vitamin Requirements" (*Bull. Hlth Org. L.o.N.*, 1938, **7**, 460) gives 200 to 250 i.u. (=0.6 to 0.75 mg.) of vitamin B_1 per day as the amount "probably sufficient for *nursery-school children.*" This is in good agreement with the American estimate. The other vitamins of the B group are not considered individually in the League of Nations report. It is worth noting that the American figures are "recommended allowances" and not "minimum requirements": that is, they appear to allow an ample margin for safety as well as for individual variation. In any case, the reputed requirements of these B vitamins of young children of 1 to 5 were based more on broad estimates than on any precise determinations.

(2) Little work has been published in Britain about the vitamin intakes of children between 1 and 5 years old. In a recent survey Bransby and Magee (*British Medical Journal*, 1947, **1**, 525) estimated the average intakes of vitamin B_1 derived from rations and allowances to be as follows:

	mg.
Children of 1 year	0·77
" 2 to 3 years	0·74
" 4 years	0·92

Children of 1 to 5, according to these authors, actually had on the whole a better provision of most nutrients than had almost any other age. In fact, other groups of the population were thought to make up any relative deficiencies from out of the "family pool"—that is, from the "surplus" allowed to children between 1 and 5.

(3) Of course, if it be accepted that the normal mixed diet is already "adequate," obviously no advantage is to be expected from increasing the intake by the use of supplements. It must be admitted that, so far as Great Britain is concerned, there have been few if any direct scientific data on the possible benefit to health of supplements rich in B vitamins for normal children of 1 to 5 years. In America, however, groups of under-weight children, tuberculous children, and others have sometimes been found to benefit when given extra vitamin B in the form of wheat germ, cereal preparations, yeast, or vitamin-B concentrates (Summerfeldt, *Amer. J. Dis. Child.*, 1932, **43**, 284; Ross and Summerfeldt, ibid., 1935, **49**, 485; Joslin and Helms, *Arch. Pediat.*, 1937, **54**, 533). Similar claims have been made for

infants and sometimes for adults (for literature see Harris, *Vitamins and Vitamin Deficiencies*, **1**, 71). More recently Harrell, also in America (*J. Nutrit.*, 1946, **31**, 283), claimed improvement in "mental and physical skills" in school-children given extra vitamin B_1.

In this country the substitution of wheatmeal flour and the national loaf for the formerly current white flour and white bread has undoubtedly greatly improved the average B-vitamin intake of the whole population. Supplements of multiple synthetic vitamin preparations have not been found to improve the physique or health of school-children as a whole (Bransby *et al., British Medical Journal*, 1946, **1**, 193).

One can only conclude (*a*) that more tests are needed on children of this age group before any confident answer can be given, and (*b*) that in the meantime a healthy scepticism is not unreasonable. Nevertheless (*c*) some kind of wheat-germ preparation forms a nutritious and palatable, if somewhat expensive, addition to the diet, and the writer's own inclination would be to use it occasionally in any *normal* child's diet and to try pushing it for *underweight* children.

Persistence of Ankylostoma Infestation

Q.—*Can ankylostomes breed in the gut? How long can they persist after a patient has left an endemic area? Some months ago I recovered a large number of ankylostomes from the bowel of a patient who returned to this country from Assam five years ago, and to-day I saw an ex-officer, who returned from Siam three years ago, with a moderately heavy infestation. As neither of these patients could have been reinfested since their return, I shall be interested to have your views on the subject.*

A.—The persistence of infection in the patients referred to is in accordance with the belief that adult ankylostomes may live for as long as six years. Ankylostomes cannot multiply in the gut, the larvae hatched from eggs passed in the faeces becoming infective only after further development during a free-living existence. Cases of reinfestation in persons returning from abroad have not been recorded in this country, but it has recently been shown that, if the blankets and night clothes of patients with hookworm disease are stored under damp conditions, workers in a laundry may become infected by handling such fomites. It is therefore possible, although very unlikely, that under exceptional circumstances reinfestation might occur in this country.

Sulphonamide Excretion in Maternal Milk

Q.—*If a nursing mother develops a streptococcal tonsillitis and is put on full doses of sulphonamides, how much, if any, is excreted in the milk? If so, is it excreted in its original form and in a concentration great enough to harm the baby?*

A.—Sulphonamides are excreted in maternal milk, but the concentration attained is considerably less than that in the blood. Suppose the latter to be 10 mg. per 100 ml.—an adequate therapeutic concentration—and that the infant gets 30 oz. (about 835 ml.) of milk daily, the amount of the drug consumed daily by the infant would be under 0.05 g. Since at least twenty times this amount can be administered to infants therapeutically, it will be understood that this small dose is unlikely to have any harmful effect.

"Parpanit" and "Diparcol"

Q.—*Could you please give any information on "parpanit" and "diparcol," with special reference to their use in Parkinson's disease?*

A.—The treatment of Parkinsonism with "parpanit," which is a diethylaminoethyl ester of phenylcyclopentane carbonic acid, was described by Dunham and Edwards in the *Lancet* of Nov. 6, 1948 (p. 724). They find that its action is similar to that of hyoscine or of tincture of stramonium. The side-effects of parpanit differ somewhat from those of hyoscine; some patients are likely to tolerate the former better than the latter, and vice versa. "Diparcol" is the diethylaminoethyl derivative of thiodiphenylamine, which has been introduced in France for the treatment of Parkinsonism; its use is still being investigated.

Benedikt's Syndrome

Q.—*What is Benedikt's syndrome?*

A.—Various syndromes have been described in connexion with lesions of the crus cerebri. A lesion of the peduncle is recognized by a homolateral lesion of the third nerve with a contralateral hemiplegia most pronounced in the face (Weber's syndrome). The oculomotor palsy is often incomplete. When the lesion extends caudally and involves the red nucleus it may produce tremor and ataxy on the contralateral side with a homolateral oculomotor lesion. This latter condition is known as Benedikt's syndrome.

Wedged Shoes for Genu Valgum

Q.—*What type of wedged shoe would be suitable for a child with incipient knock-knee?*

A.—Almost every case of early genu valgum deformity will respond to efficient and long-continued wedging of the shoes. It should be emphasized, however, that the wedging must be maintained continuously throughout a prolonged period, often of years. The wedge should be at the inner side and should measure 3/16 in. (0.47 cm.) in thickness at its base. It is usually affixed to both sole and heel, but it is probable that heel wedges alone are equally effective. The most convenient method is to have the wedges applied by an expert shoe repairer, who will usually insert them between the layers of the leather rather than affix them direct to the surface.

Testosterone and Testicular Atrophy

Q.—*It is said that testosterone, even in small doses, produces testicular atrophy. Should this preclude its use in cases of diminishing sexual function in the early middle-aged?*

A.—Testosterone does tend, in large doses, to produce some testicular involution. This is not true of small doses, and in any case it is not a contraindication where there is clinical evidence of the need for replacement of an organic deficiency by testosterone. A diminished sexual function in middle age is to some extent physiological and protective. It may, however, be psychological, or associated with the intensity of the daily problems of modern life. Testosterone should not be given unless the physician believes that he is dealing with a deficiency of testosterone secretion unassociated with the above factors.

NOTES AND COMMENTS

Aid to China.—The chairman of the Sheffield Committee (British United Aid to China) writes to say that his committee has two objectives: (1) to support a chair in one of the British-linked medical schools of China, and (2) to supply Sheffield-made goods needed in hospitals, universities, and schools sponsored by British interests. The China Christian Universities Association will administer the funds financing the chair. The need of the Chinese people is desperate, particularly for hospital instruments. Donations will be gratefully accepted by the chairman of the Sheffield Committee, 15, Endcliffe Hall Avenue, Sheffield, 10.

The Thirty-Seven Club.—The club wishes to raise £250,000 to provide essential social amenities for the coloured community in Southern Rhodesia. The club is appealing for a million shillings from overseas sympathizers and would gratefully acknowledge donations of a shilling or more. Postal orders and cheques should be made payable to the Honorary Treasurer, Million Shilling Fund, The Thirty-Seven Club, P.O. Box 397, Bulawayo, S. Rhodesia.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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